For some IT execs, the consolidation of wireless carriers spurs thoughts of lower prices and more useful applications. PAGE 7

David Moschella says there's still one vertically integrated part of the IT industry: The IT shop. PAGE 16

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DECEMBER 20, 2004 ▪ VOL. 38 ▪ NO. 51 ▪ $5/COPY

Symantec Expands Beyond Security Via Veritas Purchase

But some users and analysts see product integration as a hurdle

BY JAIKUMAR VIJAYAN

Symantec Corp.'s planned acquisition of Veritas Software Corp. gives the IT security vendor an opportunity to significantly expand its presence in the market for enterprise software, users and analysts said last week.

But, some of them added, the move to absorb Veritas creates technology integration challenges for Symantec and is being driven partly by increased competition for security-related business from heavyweight vendors such as Microsoft Corp. and Cisco Systems Inc.

Symantec claimed that the merger will make it the fourth-largest independent software vendor worldwide, with projected annual revenue of about $5 billion and a product portfolio that combines its

Symantec, page 13

NOT THEIR CHOICE

Several Veritas users said they don't think it and Symantec are a good fit:

QuickLink 51525
www.computerworld.com

IBM Builds Java System For NYSE

Custom trading app said to end downtime

BY LUCAS MEARIAN

New York Stock Exchange Inc. announced last week that it's rolling out a Java-based trading system that includes customized wireless handheld devices for traders. The new technology could mean the beginning of the end to the shouts of "Buy" and "Sell" that have long been the trademark of the nation's oldest and largest stock exchange.

The NYSE awarded IBM a contract two years ago to build a stock order management system that would provide uninterrupted availability to its brokers, who now collectively send and receive an average of 75,000 messages per day — up 200% from when the deal was signed.

The TradeWorks system

NYSE, page 14

NEWSPAPER

PeopleSoft Users Put Oracle on Probation

IT managers demand detailed road map, solid support of applications from victorious vendor

BY MARC L. SONGINI

Now that Oracle Corp. has gotten what it wanted — ownership of PeopleSoft Inc. — it must face thousands of users who are skeptical about its intentions.

Having overcome formidable obstacles to its hostile takeover bid, including a resistant PeopleSoft board, staunch opposition from former PeopleSoft CEO Craig Conway and a legal challenge from the U.S. Department of Justice, Oracle's biggest test may well be winning the trust of the installed base of the 12,700 customers that it's inheriting.

OUR TAKE

The two vendors have a lot to reconcile, starting with the basics of how they build their apps, Don Tennant says. PAGE 16

Two of the 10 users interviewed about the deal last week said they were guardedly optimistic about Oracle's ability to earn their business. But all of the users cited concerns about Oracle and said they were putting the vendor on a sort of probation before making any decisions.

Robert Robinson, business systems supervisor at Durr Industries Inc. in Plymouth, Mich., said he needs not only a promise from Oracle that PeopleSoft's applications will be supported, but also a better explanation of its plans for the World and EnterpriseOne product lines that PeopleSoft acquired with its purchase of J.D. Edwards & Co. last year.

Durr, an automotive supplier, is about to upgrade from World to EnterpriseOne. "We're scrambling to move to the most current version of the software, but now we have to wonder if we're getting our

Oracle, page 45

KNOWLEDGE CENTER SUPPLY CHAIN

RAKEFET KENAAN

RFID Reality Check

SPECIAL REPORT

Eventually, RFID will be a boon for the supply chain. But right now, reliability problems and complexity are slowing adoption. Stories begin on page 31.

ONLINE Data Points: Download the latest RFID survey results for your PowerPoint presentations. QuickLink 45240

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CONTENTS

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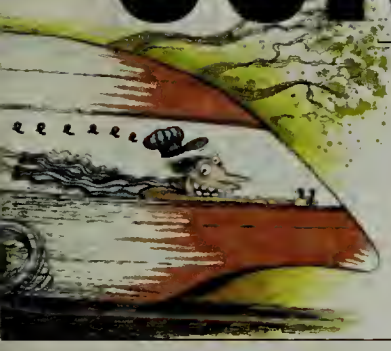

Emerging Technologies Update

In the Technology section: *Computerworld*'s Robert L. Mitchell checks in on PCI Express, 802.11g, Bluetooth and power over Ethernet. They all made a splash in the technology market in the past two years, but how are they doing now that the buzz has died down? **Page 23**

Bridging the Gap

In the Management section: The relationship manager is a crucial liaison between business and IT, but the role is still evolving, and there are lots of ways to get it wrong. **Page 27**

NEWS

6 **Sun adds Linux support** to the server software that runs its Sun Ray thin clients.

6 **Microsoft** buys a vendor of antispyware tools.

7 **Recent wireless industry** mergers like that of Sprint and Nextel get a thumbs-up from users.

7 **Users want links** between enterprise information integration technology and business intelligence tools.

9 **Cisco unveils** an appliance to manage file and print services at branch offices.

9 **Q&A: Cisco exec Mike Volpi** says the vendor is now more realistic about its strengths.

12 **Q&A: Microsoft's Bob Muglia** says "role-based configuration" is key to Longhorn.

13 **Banks are starting** to replace their core systems using new technologies.

14 **Global Dispatches: India** woos the bio-IT industry.

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OPINIONS

8 **On the Mark: Mark Hall** reports on a tool that targets Web app coders who juggle non-Java components in the pure-Java world of Eclipse.

16 **Don Tennant** laments that users were largely left off the list of considerations that Oracle had in mind when it decided to acquire PeopleSoft.

16 **David Moschella** notes that there's still one vertically integrated component of the IT industry: the IT shop.

17 **Pimm Fox** ponders Microsoft-sponsored U.K. research that the software vendor uses to compare its plight to that of Third World coffee growers.

25 **Curt A. Monash** examines four key areas that companies should re-evaluate as they plan IT strategies for 2005.

29 **Barbara Gomolski** advises cutting through the clutter of old apps and tossing out those you don't need. And she suggests some ways to get the business side to help you.

46 **Frankly Speaking: Frank Hayes** calls 2005 a year for innovation. IT shops must decide what's ripe for innovation and what's a commodity.

DEPARTMENTS/RESOURCES

At Deadline Briefs 6
News Briefs 8, 12
Letters 17
IT Careers 39
Company Index 44
How to Contact CW 44
Shark Tank 46

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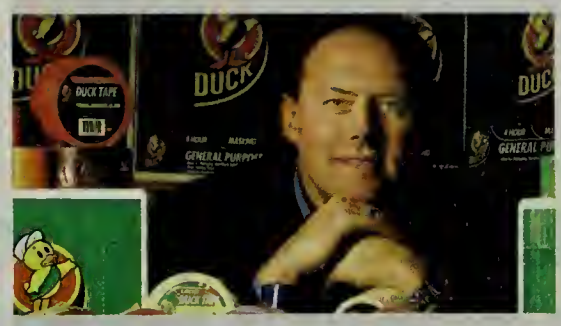
RFID Reality Check

EDITOR'S NOTE: This special report offers tips for dealing with RFID reliability problems, illustrates the complexity of the data flows and provides lessons learned about running RFID pilot programs.

SPECIAL REPORT

PACKAGE BEGINS ON PAGE 31.

32 **The Trouble with Tags.** Users, such as Henkel Consumer Adhesives' Gene Obrock (below), say RFID reliability pitfalls range from nonfunctioning tags to environmental conditions that render tags unreadable. But some say building an RFID-based supply chain is worth the trouble.



34 **The Long and Winding Road.** RFID data has a long but clear-cut journey from the manufacturing floor to the retail supply chain. Here's a look at how pioneering Gillette steers its data.

36 **RFID Pilot Tips.** Most organizations are just getting their feet wet with RFID technology. Early users such as Buffy Dorpinghaus (right) of the El Paso County government in Colorado offer their advice for managing a pilot project.

38 **Opinion:** When it comes to RFID, everyone's talking about Wal-Mart. Columnist Mark Hall says that's a mistake.

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Editor's Picks. We've compiled *Computerworld*'s best articles about radio frequency identification technology, including pieces that address the issues of return on investment, privacy and security.
QuickLink 51120

Opinion: RFID data is vulnerable under certain circumstances, says consultant and *Computerworld* columnist Mark Willoughby, but tougher standards now prevent hackers from using sensitive data in malicious exploits.
QuickLink 49444

Data Points. Our newest collection of charts offers factoids about RFID technology that you can download for your PowerPoint presentations.
QuickLink a5240

AT DEADLINE

Siebel Buys eDocs To Extend CRM App

Siebel Systems Inc. last week agreed to acquire eDocs Inc. for $115 million in cash. Siebel said the move will extend its suite of CRM applications. EDocs makes e-billing and customer self-service applications to cut call center and billing costs. The deal is expected to close next year.

HP, Intel Terminate Their Itanium Pact

Hewlett-Packard Co. and Intel Corp. ended a 10-year pact to co-develop the Itanium chip for servers. Intel will continue work on the chips, and microprocessing development by HP will effectively end. HP's Itanium team will join Intel. HP also pledged to continue using the chips in its servers and to spend $3 billion over three years on Itanium-related product development.

New Standard Could Drive RFID

EPCglobal Inc. last week said its board has ratified the second generation of its Electronic Product Code (EPC) specification. The nonprofit industry group said the standard, supported by dozens of major companies, such as Wal-Mart Stores Inc., The Gillette Co. and Albertson's Inc., will drive commercial radio frequency identification and EPC use worldwide.

Two Sentenced In Hacking Case

Two 21-year-old Michigan men were sentenced – one to nine years and one to 26 months in federal prison – for conspiring to hack into the IT systems of national home center chain Lowe's Companies Inc. and stealing customer credit card information. A third defendant still awaits sentencing. Officials say the trio compromised a Lowe's store wireless network to gain access to the credit card data.

Sun Adds Linux Support To Sun Ray Thin Clients

Software reduces bandwidth needs for remote users

BY PATRICK THIBODEAU

SUN MICROSYSTEMS INC. last week said the server software that supports its Sun Ray thin-client devices can now run on x86-based Linux systems in addition to Sparc/Solaris machines.

Sun Ray Server Software 3.0 also includes new bandwidth adaptation and management technology that's designed to make it easier for IT managers to support remote use of the thin clients. Because of reduced bandwidth needs, the devices can now be linked to back-office systems via Digital Subscriber Line or cable modem connections, said Sun, which also introduced a thin client with a 17-in. screen.

Time Warner Cable is a large Sun Ray user, with about 750 of the terminals. Cesar Beltran, vice president of IT at the Time Warner Inc. division's data center facilities in New York, said he's interested in both of the major new features that Sun is adding to the Sun Ray server software.

Beltran plans to investigate the possibility of switching from the UltraSparc-based Solaris servers that currently support Time Warner Cable's Sun Ray users to x86 hardware running Linux. "We're exploring ways to eliminate some costs," he said.

In addition, using Linux would help employees who provide technical support to customers who access the Internet on Linux-based desktop systems equipped with cable modems, according to Beltran. The workers would be able to enter Linux commands at their terminals to help troubleshoot customer problems.

Telecommuting Niche

Time Warner Cable is also looking at allowing its customer service workers to telecommute in order to increase workforce flexibility and respond to the demands of handling some 40,000 customer calls daily, Beltran said. The telecommuting could start as carly as next year, but a final decision hasn't been made.

Beltran said thin clients provide better data security than full PCs do and require little support from IT staffers. Indeed, he envisions end users taking the thin-client terminals home with instructions on how to hook them up to DSL or cable modems on their own.

PRODUCT DETAILS

Sun Ray Server Software 3.0

- Supports all existing Sun Ray devices.
- Includes expanded security features for controlling access to peripheral devices.
- Supports the PC/SC framework for smart card applications.

Price: Starts at $99 per seat.

Sun Ray Ultra-Thin Client 170

- New thin-client device with a 17-in. flat-panel display.
- Provides 56% higher resolution and 36% more viewing area than the 150 model.
- Includes a projector port for use with smart cards in meeting rooms.

Price: Starts at $1,049.

Bob O'Donnell, an analyst at IDC in Framingham, Mass., said telecommuting via thin clients is a niche that could grow as part of an overall increase in corporate use of the devices. IDC expects shipments of 1.6 million thin clients worldwide this year, a 9.4% increase over last year's level, and it's forecasting a 19% jump in shipments next year.

"We think the awareness level is growing, the cost equation makes more sense, and obviously the [PC] security problem is going to get worse and worse," O'Donnell said. For now, thin clients continue to be deployed primarily in call centers and as part of point-of-sale systems, according to O'Donnell and other analysts.

Tyler Best, CIO at Vanguard Car Rental USA Inc., a Tulsa, Okla.-based company that owns the National and Alamo brands, said Vanguard is installing Windows-based thin clients from Hewlett-Packard Co. in its point-of-sale systems. The thin clients are about 72% less expensive than fully loaded PCs, Best said.

"I think the thin client has a place at the point of sale," Tyler said. "I'm not so sure I would put it in my corporate environment." He added that PCs aren't very expensive and that end users in finance and other corporate departments need more functionality than point-of-sale workers do. **51523**

Microsoft Buys Tools For Fighting Spyware

BY JAIKUMAR VIJAYAN

Microsoft Corp.'s announcement last week that it has purchased a small vendor of anti-spyware tools serves to highlight the growing seriousness of the spyware problem for users, according to security analysts.

Microsoft said it acquired New York-based Giant Company Software Inc. for an undisclosed amount and plans to use the company's intellectual property and technology assets to provide Windows users with new tools for protecting their systems against spyware.

A beta version of a spyware protection tool based on Giant Company's technology is due to be released in January for Windows 2000 and subsequent versions of the operating system, said Amy Carroll, director of Microsoft's security business and technology unit. She said the tool will be able to scan for, detect and remove spyware and other malware.

Microsoft officials haven't decided yet whether the anti-spyware tool will be integrated into future Windows releases or sold as a stand-alone product, Carroll said. "Our immediate job right now is to get the beta out," she added.

The acquisition addresses growing concerns over the security threats that spyware poses to corporate and home users alike, said Jon Oltsik, an analyst at Enterprise Strategy Group Inc. in Milford, Mass. "Spyware has become the new scourge on PC users," Oltsik said.

Vendors such as McAfee Inc., Computer Associates International Inc., Webroot Software Inc. and Trend Micro Inc. have begun offering anti-spyware tools designed for corporate users. But, Oltsik said, "Microsoft is jumping into a new market where they have as good a chance as anyone else to make an impact."

Microsoft's purchase of Giant Company is its second significant acquisition in the IT security market. In June 2003, the company bought Romanian antivirus software developer GeCAD Software SRL for an undisclosed price. Microsoft is expected to make antivirus capabilities available in future versions of Windows as a result of that purchase. **51521**

Users Welcome Consolidation Of Major Wireless Carriers

Hope for pricing, tech benefits from Sprint/Nextel deal

BY MATT HAMBLEN

Last week's merger deal between Sprint Corp. and Nextel Communications Inc. continues a consolidation trend among wireless carriers that could help lower prices and bolster the development of technology for corporate applications, according to several IT managers and analysts.

The planned creation of Sprint Nextel, as the combined company will be called, follows the October acquisition of AT&T Wireless Services Inc. by Cingular Wireless LLC. Sprint and Nextel said they plan to spin off Sprint's local telephone business in order to focus on wireless and integrated communications services.

John Bolz, vice president of technology architecture at Wells Fargo Services Co. in Minneapolis, said the IT arm of Wells Fargo & Co. abandoned its initial wireless projects five years ago, "when the technology was premature." But Bolz predicted that Wells Fargo will take a renewed interest in wireless applications because of the two mergers.

"These industry consolidations definitely renew the potential we see in wireless," he said. "This is now the opportunity for people to go ahead and make wireless work right."

Bolz said Well Fargo's financial services and mortgage divisions could benefit greatly from wireless infrastructures instead of fixed networks, since their office locations often are moved. He added that he also would like to explore the use of secure data services on phones that combine Wi-Fi wireless and WAN cellular connectivity.

LOVENTHAL is hopeful the Sprint-Nextel merger will result in better pricing.

The 100 or so mortgage officers at Hawaii HomeLoans Inc. in Honolulu have been using Sprint's wireless data service for three years, and Hawaii HomeLoans has also relied on Sprint for integration help. Leonard Loventhal, the mortgage company's executive vice president, said that he's optimistic about the planned merger. "Sprint is very advanced in the 3G [wireless] data field, and that is where we're most interested," he said. "We're also hopeful that the larger company can bring better pricing to the table."

Bob Egan, an analyst at Mobile Competency Inc. in North Providence, R.I., said he thinks the formation of Sprint Nextel will push the two largest wireless carriers, Verizon Communications Inc. and Cingular, to make "preemptive strikes" on pricing. Egan predicted that the cost of wireless data services will soon "collapse" to about $35 for each gigabyte of data transmitted, down from the current average of $63 per gigabyte on corporate contracts.

Craig Mathias, an analyst at Farpoint Group in Ashland, Mass., said he doesn't expect the mergers to lower prices in the wireless industry. But neither does he expect an increase in prices, despite the reduced number of competitors. The combined companies will be able to take advantage of greater operating efficiencies because they will need fewer capital assets — including cell towers — and fewer employees, Mathias said.

Sprint and Nextel expect to complete the acquisition during the second half of 2005. The deal is being billed as a merger of equals, although Sprint is officially buying Nextel in a cash and stock transaction valued at $35 billion.

The merger will bring together Nextel's iDEN wireless network, Sprint's CDMA network and a new network based on CDMA EV-DO technology that Sprint plans to roll out next year. Sprint and Nextel officials said they plan to migrate some of Nextel's services, including its push-to-talk phone capabilities, to the EV-DO network "over time."

Other migration plans will be unveiled when the merger is finalized, they added. 51526

ON THE MOVE

Go to our Web site for more coverage of mobile and wireless technologies:

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IT Calls for Enterprise Integration-BI Link

Users want access to real-time data

BY HEATHER HAVENSTEIN

Corporate users are increasingly pairing enterprise information integration (EII) technology with business intelligence tools to bolster their efforts to use real-time transaction data to make day-to-day operating decisions.

BI vendors are aligning their products with those of EII vendors to meet user demand to augment historical information in a data warehouse. The EII tools can be used to federate data by providing a single point of access across disparate systems.

For example, Composite Software Inc. in San Mateo, Calif., this week will unveil Version 3.0 of its Composite Information Server, adding intelligent querying technology for formulating an optimum aggregation plan in real time. New optimization features are designed to evaluate data shapes and the cost of running complex queries against more data sources in less time, said Jim Green, chairman and CEO.

BI vendor Cognos Corp. this month said it will embed Composite's server in its reporting tools. Ottawa-based Cognos also said this month that its reporting tools will interoperate with integration software from Ascential Software Corp.

San Jose-based Business Objects SA and EII vendor Attunity Inc. in Wakefield, Mass., this month signed a joint development and marketing agreement to allow users to update a data warehouse or data mart in real time. Business Objects has similar alliances with MetaMatrix Inc. and IBM.

BI vendors are responding to growing user interest in EII tools, particularly to access a variety of data stores, said Colin White, president of BI Research in Ashland, Ore.

Motorola Inc. recently finalized plans to standardize on technology from Boston-based MetaMatrix to build an EII layer into its enterprise architecture, said Toby Redshaw, corporate vice president of IT strategy at Motorola.

> **"Most large companies have a bucket of legacy spaghetti, [and] the promise of BI is diluted because of the difficulty of getting to the spaghetti."**
>
> **TOBY REDSHAW,** CORPORATE VICE PRESIDENT OF IT STRATEGY, MOTOROLA INC.

"Most large companies have a bucket of legacy spaghetti, [and] the promise of BI is diluted because of the difficulty of getting to the spaghetti," he said. "Without a tool that lets you quickly interrogate these things, normalize data and express it a layer above the spaghetti, you're doing a lot of heavy lifting."

Beachwood, Ohio-based Penske Logistics LLC uses technology from Attunity and Business Objects to offer its customers more real-time information on delivery or pickup times, said Thomas Nather, a senior systems analyst at Penske.

"It opens up another venue for BI," he said. "To keep inventory low, you have to know where the rolling inventory is."

Owens Corning, a Toledo, Ohio-based manufacturer of building materials, uses integration technology from Ascential combined with Kalido Ltd.'s BI software to generate daily gross margins from multiple ERP systems, said Klaus Mikkelsen, Owens Corning's global development leader.

Before using the joint solution, the company could only access margin information monthly. "Now, we have the ability to generate gross margin information every day, giving us 365 opportunities for course correction," he said.

NStar, a Boston-based electric and gas utility, uses Ascential's QualityStage integration software to transform real-time customer location data into reference data for dispatchers analyzing service outages.

That data can also be used in combination with BI tools for later analysis of maintenance work and improvements that are needed in the utility's distribution system, said Mannie Goldberg, NStar's director of data resource management. 51519

BRIEFS

3Com Acquires TippingPoint

3Com Corp. last week bought TippingPoint Technologies Inc., a developer of technology for preventing attacks on computer networks, for $430 million in cash. 3Com said it plans to add TippingPoint's UnityOne line of network-based intrusion-prevention system hardware and software to its stable of enterprise security products.

IBM, AMD Develop Chip Technology

IBM and Advanced Micro Devices Inc. last week unveiled plans to jointly develop a method for implementing strained silicon technology on positive and negative transistors. The new manufacturing technique, dubbed dual-stress liner, is designed to improve the performance of processors starting early next year. The technology will be integrated into AMD's Opteron and Athlon 64 processors and IBM's Power processors by mid-2005.

Microsoft Ships PC Search Tool

Microsoft Corp. joined the desktop search fray last week with the beta-test version of a suite designed to let users find information stored in PCs. The MSN Toolbar Suite also includes tool bars for searching hard disk drives. The suite can index and retrieve Microsoft Outlook, Word and PowerPoint files as well as Adobe PDF files.

Symantec Invests In Mazu Networks

Symantec Corp. was among the investors in a $12 million round of financing raised by Mazu Networks Inc., a maker of network intrusion-prevention technology. The investment comes a week after Symantec bought Platform Logic Inc., another maker of intrusion-detection software.

ON THE MARK

HOT TECHNOLOGY TRENDS, NEW PRODUCT NEWS AND INDUSTRY GOSSIP BY MARK HALL

MATTHEW FAULKNER

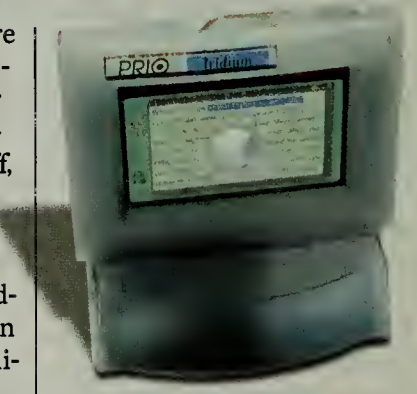
Tool Targets Web App Coders . . .

. . . who are juggling non-Java components in the pure Java world of Eclipse, the popular open-source development framework. The NitroX 2.0 plug-in from M7 Corp. in Cupertino, Calif., lets Eclipse users manage Java code as well as the non-Java components that are common in Web-based programs, such as HTML code. Carlos Chang, a senior product manager at M7, claims that the upgraded version of NitroX is better for debugging JavaServer Pages (JSP) than Eclipse is by itself. "Eclipse can't work with JSP pages because they're not pure Java," he says. Chang points out that Web applications are much more complex than pure J2EE programs, and he contends that managing dependencies among JSPs, configuration files, HTML code and many more Web-specific elements is a burden for software developers. NitroX 2.0 can scan all of a Web application's code, then map the dependencies of each component and point a developer to the exact lines of code that create the dependencies. In addition, the tool's WYSIWYG editor supports multiple languages; for example, you can see how localizing Web pages can affect their layout. Chang notes that converting text originally written in English to German can lengthen a page by 20%. The upgraded NitroX software starts at $299 and is due to ship next week.

Tiltable LCD monitor flips image. . .

. . . when it's turned over. That's the clever bit of technology in a pair of 17- and 19-in. LCD panels that LG Electronics U.S.A. Inc. will introduce next month at the Consumer Electronics Show in Las Vegas. The displays are attached to a pedestal that allows them to be flipped over to face in the opposite direction. According to Chris Neff, director of marketing at the Englewood Cliffs, N.J.-based division of LG Electronics Inc., a user can open a spreadsheet or a Word document on his PC and then flip the monitor to show the information to someone sitting on the other side of a conference-room table. The image on the screen will automatically right itself so it can be viewed properly, Neff says. However, LG doesn't expect the flipping capability to be the main attraction for users. "It's the razor sharpness of the display that wins folks over," Neff says. LG's proprietary graphics chip automatically adjusts color depth, reducing pixel image-adjustment response time to a speedy 12 milliseconds. Pricing will start at under $450, which is pricier than CRTs are, to be sure. But, Neff points out, "this is what you stare at all day. It should be the most important technology you get."

LG's tilting LCD display



Prio Vision Tester

On the other hand, John Torrey argues that you need to treat your eyes better than merely giving them a good display. Torrey, CEO of Prio Corp. in Beaverton, Ore., says users should test how their eyes work with specific computer monitors to avoid productivity-draining eyestrain. He wonders why so many companies send in ergonomic experts to adjust employees' workstation areas but seldom test how a person's eyes perform while viewing a computer display. That's probably because there are so many eyes to evaluate. The National Institute for Occupational Safety and Health estimates that 100 million pairs of them spend at least four hours a day in front of monitors. That results in some problems. The American Optometric Association says as many as 75% of end users suffer from computer vision syndrome, which can include classic eyestrain symptoms like blurred distance vision and burning eyes as well as neck and back pain from adjusting your sitting position to compensate for seeing the screen poorly. Torrey says the biggest problem is that no matter how high a monitor's resolution is, it doesn't deliver the edge detection necessary for the human eye to focus on objects within 10 feet. That means the eye is constantly readjusting itself to see the edge of the text on a computer display, he says. Torrey claims that his company's Prio Vision Tester, available at many eye clinics and optometrists' offices, can determine how your vision can be corrected for computer work. You should, um, look into it for your IT staffers.

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New Cisco Appliance Consolidates Backup

Can move local backup function to data center

BY LUCAS MEARIAN

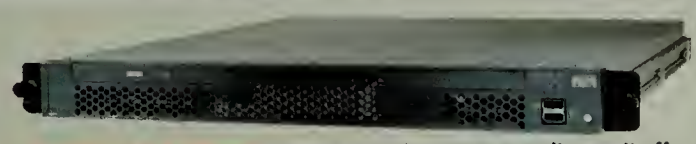
Cisco Systems Inc. last week unveiled a file-based data-sharing appliance that can consolidate management of distributed file and print services within branch offices and move the local backup function to a central data center.

The Cisco File Engine appliance uses the company's so-called wide-area file-services technology to create a single global namespace for file and print services over a WAN. The technology also uses caching algorithms to create LAN-like performance for data retrieval.

IT administrators can also use the 1U (1.75-in.-high) File Engine appliance to consolidate all branch-office data backup into central file servers in the main data centers, removing the need for local tape backup devices and administration at each remote location.

Vanasse Hangen Brustlin Inc. (VHB), a 700-person engineering firm in Watertown, Mass., purchased three File Engines and has submitted requests for 15 more in order to streamline file sharing among engineers in more than a dozen East Coast offices, said Greg Bosworth, manager of information technologies at the company.

Currently, VHB uses Windows 2000 file servers and local folders to document changes to engineering projects. The changes must be kept in order throughout the life of a project, which can last years. Archiving changes after the completion of a project is a time-consuming operation, according to Bosworth.



THE CISCO FILE ENGINE comes in an edge or core appliance. It offers file and metadata caching, protocol-specific latency reduction, native end-to-end CIFS/NFS support and Web-based central management.

"Trying to have people keep documents in sync between offices is just a manual process right now," he said.

Keeping ownership and access under control has also been a challenge, Bosworth said. "The files are 10MB to 15MB or larger, and working with those over a T1 line is not practical," he said.

The File Engine controls access and addresses performance problems normally found with standard file-access protocols, such as Common Internet File System for Microsoft Windows environments and Network File System for Unix environments, over the WAN.

Peter Gerr, a senior research analyst at Enterprise Strategy Group Inc. in Milford, Mass., said remote file and print data management is a huge concern today, because up to 70% of a company's data resides in distributed offices.

"As data protection has become more important because of compliance, corporate governance and security, it's only natural for users to focus on data protection investments where they're most needed, and they're most needed out on the edge," Gerr said.

Cisco is competing against start-ups such as Tacit Networks Inc., Riverbed Technology Inc., Disksites Inc. and Expand Networks Inc. in the WAN file-sharing business. Some of those companies are optimizing network bandwidth, while Cisco and Tacit products reduce the amount of data moving through that pipe by sharing a single copy of a file and thus eliminating duplication.

The File Engines are priced at $12,000 for up to 50 branch-office users and $4,500 for additional 50-user license packs. The product is now shipping. **51494**

BACKING UP THE EDGE

More on data center efforts to gain control over branch-office backups:

QuickLink 48547
www.computerworld.com

In Downturn's Aftermath, Cisco Sharpens Its Technology Focus

Executive says vendor has cut costs, become more realistic about strengths

BY MATT HAMBLEN

Mike Volpi *is senior vice president and general manager of the routing technology group at Cisco Systems Inc. Following Cisco's annual analyst conference in San Jose this month, Volpi spoke with* Computerworld *about the changes the company has undergone since the bursting of the dot-com bubble. Excerpts follow.*

How many companies has Cisco acquired in all? About 100, with 75 [of them] between 1996 and 2000. We were growing like gangbusters. When I started [in 1994], Cisco had about 1,600 people, and in 2000, we had 55,000 employees. Our revenues had gone all the way to $23 billion. Some growth was acquisitions, and some was because of technology developed organically inside of Cisco. IT was just exploding.

And then the bubble burst. In 2001, things went south for the entire industry. Money disappeared, the bubble burst, people stopped spending, service providers went away. Our record quarter was $7.2 billion, and that dropped to $4 billion-plus.

We had layoffs, really tough — almost 9,000 at once.

So what happened next? For a while, we were searching for bottom because there was this feeling of, "How far will we actually fall?" I felt we had gotten to the bottom by the summer of 2001. Then it became [an issue of] transforming the company, because every aspect of the company had been geared towards growth, and we didn't have any great cost controls. Everything was very decentralized. Along with the layoffs, we did a restructuring where we recentralized a lot of functions. We decided to cut costs in marketing and engineering, exited several business areas and shut down product lines.

What are some of the technologies Cisco stopped offering? We exited a bunch of wireless areas, also DSL [and] long-haul optical. That was tough because all of those theoretically had promise. Looking back now, it might seem obvious why we exited areas. Why would anybody buy any more optical gear? you might say. But at that time, in 2001, we had no idea. You had to make these decisions amidst a lot of uncertainty.

There was a question in 2001 of whether we should even stay in the service provider business at all. Today, people will say, "What, are you insane?" But back then, it was a valid question. At the peak, before the downturn, close to 40% of our revenue was from service providers. And it had dropped down to 15%.

And it's about 25% of your revenue now? Yes, we've been clawing our way back to a good position, and we can do more.

Do you think service providers will ever become so effective that they'll be more trusted than internal IT is? If you talk about smaller businesses, they don't have an IT guy — and if they do, it's probably a kid out of college. In those circumstances, service providers do have an opportunity to create value. But big businesses will continue to do IT on their own and simply buy connectivity.

What was the process that brought Cisco back, from an overall standpoint? There were a lot of changes in 2001. From there, it was just tighten your belt really hard and wait for the market — weather the storm and see what's going to happen. That was through 2003, and we made virtually no acquisitions, didn't invest in new stuff hardly at all.

In 2003, we saw gradual improvements in the U.S. economy, and consumer confidence started going up, and so we started branching out a little more with a few acquisitions here and there, starting new product development, hiring a handful of people.

We have a better realization of what we can and cannot do as a company. Back in 2000, we all felt invincible. Now, we have the attitude that we know how to do certain things well and we don't do these other things well, so let's not do those things. We feel we still have to stay tight with belts because the climate's not great, but we feel like "not great" can continue for a while and we'll be OK. **51502**

7:02 am
Section

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BRIEFS

CSC Sells DynCorp Unit for $850M

Computer Sciences Corp. last week agreed to sell its DynCorp International services unit to The Veritas Capital Fund LP, a private equity firm, for $850 million. CSC bought the business two years ago. CSC said it made the deal, which is expected to close next spring, so it can focus on the government IT market.

SAP Offers Remote Security Evaluation

SAP AG is offering its customers a new security service. As part of its Security Optimization Service, SAP performs remote evaluations of customers' systems, searching for vulnerabilities in SAP applications, middleware and Internet gateways, as well as interfaces to partners' systems and user authorizations. Following the evaluation, SAP will suggest fixes.

Time Warner, U.S. Settle AOL Charges

Time Warner Inc. will pay the U.S. government $210 million to settle charges that its America Online Inc. unit fraudulently inflated revenue figures, court documents showed. Time Warner is also expected to pay about $300 million to settle civil charges by the U.S. Securities and Exchange Commission related to its buyout of an AOL stake held by Bertelsmann AG, a source said. The charges will be dropped in 24 months if AOL follows the terms of the deal.

Neon Acquires Rival ClientSoft

Neon Systems Inc. last week acquired ClientSoft Inc., a maker of mainframe integration tools, for $10.5 million in cash and the right to acquire 1.125 million shares of Neon stock. Neon said the move increases its customer base by more than half, to almost 500 sites, and adds depth and mainframe Web services expertise to its services operation.

Longhorn Will Let Users Tune Windows for Different Servers

Microsoft executive sees role-based configuration as key feature of new OS

BY CAROL SLIWA

MICROSOFT CORP. officials last year highlighted three new subsystems as the key pillars for the next major release of Windows — WinFS for data storage, Avalon for 3-D graphics and Indigo for building advanced Web services. The company disclosed in August that WinFS won't be part of the next release, which is code-named Longhorn [QuickLink 49244]. But **Bob Muglia**, senior vice president of Microsoft's Windows Server division, told *Computerworld* during an interview this month that role-based configuration tools "were always the most important feature set that I thought was going into" the server version of Longhorn, which is due in 2007. Excerpts from the interview follow.

How do you respond to people who say you've gutted the heart and soul of Longhorn by removing WinFS? For me, the heart and soul of Longhorn in the server was always about how we really refocus on role-based configuration and provide that level of flexibility to our customers. WinFS will be a great feature in the operating system when we deliver it. This is a new thing nobody's ever done before, and when you build technology like that, being certain about the exact date you can deliver it is hard to do. So I feel great about WinFS. [But] I feel great about Longhorn without WinFS.

What will users be able to do in Longhorn that they can't already do in Windows Server 2003 with respect to role-based configuration? Let me give you an example. An enterprise can use the role-based configuration tools to build [system] images that have just the roles on it that they want, and then they can deploy those images to the appropriate servers. That's a key feature that our [corporate customers] have been asking for: being able to really build customized images that target a given server. With role-based configuration, you could build a server that was just a networking server that only had DHCP and DNS on it as well as the core operating system. And you can't do that today.

The other thing we're doing is all sorts of enhancements around the roles in terms of improving task management and managing overall, which is really appropriate to all segments of the marketplace.

So a customer could configure an application server, a rights management server or an Active Directory federation server? Right.

Will you develop different versions of Longhorn geared toward different roles, or will users just gain the ability to customize the software? This is an enterprise discussion, just to be clear. This is not a medium business and certainly not a small business discussion. But in the enterprise space, customers want the flexibility to buy one version of the operating system and acquire the number of licenses they need for it. And then they want the flexibility to deploy that with just the services on it that they need, and they'll configure those images. And those large customers are very, very comfortable with image-based deployment.

The other trend to note is the increase of blades. Blades are the fastest-growing segment of the server marketplace, and this level of flexibility around role-based configuration is quite consistent with that trend.

Will you still offer standard and enterprise editions? Yes. We haven't finalized our packaging yet, but we still will have a couple of editions, and you'll be able to do some new roles. For example, you'll be able to build a clustered image on an enterprise [server] that you can't do with standard [ones].

Beyond WinFS, have any other features been dropped from Longhorn? The truth of the matter is that I'm sure there's lots that I don't know of. There's so much functionality that we'll be coming out with. It's a little early for us to talk about all the specifics that are there or aren't there. We'll figure out some of these specifics over time. 51537

Microsoft Pushes Back Longhorn Server Beta

WINDOWS users who are anxious to get their hands on the first beta release of the Longhorn server will have to wait a bit longer than expected.

Earlier this year, Microsoft projected that the initial beta of the server version of Longhorn would emerge in the first half of next year. But now the company is saying that the beta code is due in the second half of 2005.

"We feel good about that date, and we'll drive forward to that beta process," Bob Muglia, senior vice president of the Windows Server division, said this month. "We clearly have more clarity on Longhorn beta dates [now]."

In the meantime, Microsoft this month made available "release candidate" versions of Windows Server 2003 Service Pack 1 and a companion release of SP1 targeted specifically at systems based on Intel Corp.'s 64-bit Itanium processors. Commercial shipments of the SP1 releases are officially scheduled to start in the first half of next year, but Muglia said he expects the updates to be ready by March.

Also this month, Microsoft put out the first beta of an interim Windows Server 2003 release, code-named R2, that bundles together various feature packs it has made available for the operating system. A second beta of R2 is due in the first half of 2005, and the commercial release is expected in the second half, according to Muglia.

R2 will replace the initial version of Windows Server 2003, but Muglia said existing Windows Server 2003 users should move to R2 only if they need the new features that it incorporates. "We're not asking people to upgrade," he said.

Muglia said users will still be able to purchase existing products such as the Visual Studio 2005 runtime and SharePoint Services separately from R2. "But in general, our goal moving forward is to incorporate those things into these update releases," he said.

Microsoft also plans to ship R2 editions of Windows Storage Server and Windows Small Business Server in the second half of next year, as well as the Windows Server 2003 Compute Cluster Edition, Muglia said.

– Carol Sliwa

Banks Moving to Change Out Core Systems

Web-enabled apps supplant aging Cobol platforms

BY LUCAS MEARIAN

After coddling aging core systems for decades, many top-tier banks are planning or implementing change-outs of old Cobol-based platforms with open, Web-enabled applications. The core systems support the most basic bank functions, such as savings and checking accounts and lending systems.

The upgrades are being driven by an improving economy, growing regulatory requirements and recent moves to unbundle packaged applications, allowing for piecemeal, and thus cheaper, replacement of older platforms, said Gartner Inc. in Stamford, Conn.

Updating back-office systems can cut banks' IT operating budgets by 5% to 8% through improved efficiency, said research firm Celent Communications LLC in Boston.

About 23% of all U.S. banks are planning major initiatives related to core banking systems, according to Gartner. U.S. banks lag behind financial institutions in other parts of the world such as Europe, where banks are pressed to change by new European Union rules, Gartner said.

Fifth Third Bancorp, a $6.4 billion bank with 950 branches and more than 20,000 employees, replaced its mortgage-origination and leasing systems with packaged software from from Fiserv Inc. in Brookfield, Wis., over the past two years. Fifth Third used Fiserv's UniFi Pro Mortgage software to replace a green-screen application that was no longer supported because the supplier went out of business.

The success of the new software prompted the Cincinnati-based bank to look closely at replacing more core systems.

Gary Porter, vice president of IT mortgage servicing at Fifth Third, said developers couldn't keep up with required product-development cycles on the older systems. "Today, we can bring a new product to market in weeks," he said. "With our old legacy system, it would take months."

Fifth Third officials also cited increasing regulatory oversight of the financial services industry in the form of the Sarbanes-Oxley Act and the USA Patriot Act as a reason for choosing a third-party provider.

New York-based Citibank is in the midst of a project to migrate its core mainframe-based banking application, called Cosmos, to a common system built with hardware from Hewlett-Packard Co. and running the packaged Flexcube banking application from i-Flex Solutions Ltd. in Bangalore, India.

Citibank officials, who couldn't be reached last week, previously told *Computerworld* that the project was undertaken to replace a decades-old set of back-office systems in overseas offices with a single platform and a cross-border set of standard user interfaces and business processes [QuickLink 26921].

The 4-year-old project, estimated by Celent to have cost about $100 million so far, is now live in 50 of the 90 countries where Citibank has offices. Citibank is spending about $35 million per year on the project, Celent said.

Developing Partnerships

Some recent partnerships have led to changes in the traditional one-size-fits-all approach for banking applications that forced large banks to spend hundreds of millions of dollars or more to upgrade back offices over the past six to eight years.

Several major service providers and makers of core banking systems have joined to create bundled software/services products for operations such as customer account management, lending or billing. For example, IBM last month brought out a J2EE version of Flexcube.

That IBM/i-Flex partnership caught the interest of Ken Casey, senior vice president of retail banking delivery at ATB Financial, an Edmonton, Alberta-based bank. Casey has started to look at options for replacing a 25-year-old IBM mainframe-based core banking system.

ATB, which manages over $14 billion in assets, has already taken on a $17 million rewrite of its teller system, which included replacing 1,000 terminals with PCs. The Java-based systems are gradually replacing Cobol systems, said Casey. ATB, a midsize bank, has 4,500 employees. **51513**

Continued from page 1

Symantec

antivirus, firewall and intrusion-detection offerings with Veritas' data backup and archiving tools, as well as software for managing servers and application performance.

With the acquisition, "it's time to stop thinking of Symantec as a security vendor and [view it] more as the Wal-Mart of the cyber industry," said Dave Jordan, chief information security officer for the Arlington County government in Virginia. "They're flush with cash, they have top-of-the-line products, and they are at the top of their game."

The county currently uses storage hardware and software from EMC Corp. But Jordan said the addition of Veritas may enable Symantec to bundle storage software with its security tools at a more competitive price than what EMC charges.

However, Symantec's challenge will be to find a way to bring together all of its products under a common management interface and architecture, said Lloyd Hession, chief security officer at Radianz, a New York-based company that provides network services to financial services firms.

"Symantec hasn't effectively integrated the portfolio of security products it already has," Hession said. "Adding the Veritas products won't address this problem and arguably will make it worse."

Dong Jin Kim, a senior Unix systems administrator at Eastman Kodak Co. in Rochester, N.Y., uses Veritas' NetBackup software. Kim said that although he thinks Symantec is a good software vendor, he isn't convinced that it knows a lot about storage.

"Whether they can handle Veritas well is what concerns me," Kim said, adding that he would be more comfortable if Veritas was being bought by a storage hardware vendor.

Symantec CEO John Thompson said during a teleconference on Thursday that the Cupertino, Calif.-based company plans to release a product integration road map after the deal is completed in next year's second quarter. "We have an enormous opportunity to leverage each other's technology strengths," he said. "There's no overlap in strategic product lines or R&D."

'Mixed' Merger Record

But Gartner Inc. analyst John Pescatore said Symantec has "a very mixed record" on integrating previous acquisitions into a cohesive product line.

For instance, its purchases of Axent Technologies Inc. in 2000 and RipTech Inc. two years ago haven't panned out, according to Pescatore. "If I was a Symantec customer, I would be looking at those acquisitions," he said.

Steve Hunt, an analyst at Forrester Research Inc., said the move to acquire Mountain View, Calif.-based Veritas is consistent with Symantec's new information integrity strategy, which focuses on software that can give IT managers a more holistic view of the operational and security risks that their systems face [QuickLink 50416]. "Symantec is reinventing itself as an enterprise risk management company," Hunt said.

The company needs to grow in other areas because of increased competition in the IT security market, said Pete Lindstrom, an analyst at Spire Security LLC in Malvern, Pa.

For instance, Microsoft is working to integrate antivirus functionality into Windows. And just last week, it announced the acquisition of Giant Company Software Inc., a vendor of antispyware tools (see story, page 6).

In addition, Cisco and other networking vendors are building expanded security functions into their routers and switches, which are expected to further dilute the demand for stand-alone security software.

The merger of Symantec and Veritas is "an acknowledgment that there's just too much ambiguity in the security space to grow a huge company," Lindstrom said. "You need something a little more solid and foundational. Backup software is recession-proof." **51524**

Reporter Lucas Mearian contributed to this story.

JUST THE FACTS

KEY STATISTICS

- **Symantec:** $1.87 billion in revenue; 6,000 employees
- **Veritas:** $1.75 billion in revenue; 6,700 employees

MANAGEMENT PLAN

- **John Thompson** will continue to serve as Symantec's chairman and CEO.
- **Gary Bloom**, the top executive at Veritas, will be vice chairman and president of the merged company.

REVENUE FORECAST

- **Symantec expects** revenue of about $5 billion in fiscal 2006, which starts in April.
- **About 75%** of the combined company's business is expected to come from corporate users.

GLOBAL DISPATCHES

An International IT News Digest

India to Build Center For Bio-IT Industry

BANGALORE, INDIA

ALREADY successful in IT outsourcing, India is now targeting the market for bioinformatics, which uses technology to discover new drugs and analyze genetic markers. The Indian government plans to set up a $22 million bio-IT business park that's envisioned as a global hub for companies in the life sciences industry, according to Dayanidhi Maran, the country's minister for communications and information technology.

Some Indian software and services companies, including Bangalore-based Wipro Ltd., have diversified into services that are related to bio-IT, although that business still constitutes only a small percentage of their revenues. India is also home to bio-IT companies such as Strand Genomics Pvt., a vendor of software for use in drug discovery and development work.

The first phase of Bio-IT Park is scheduled to be completed by 2006, and the second phase will follow by 2009. Possible locations for the 100-acre campus include Bangalore, Hyderabad, Chennai, Delhi, Kolkata and Pune.

■ JOHN RIBEIRO, IDG NEWS SERVICE

GLOBAL FACT

$617M

Average annual savings that county and city governments in the U.K. could achieve by implementing e-government initiatives.

SOURCE: U.K. OFFICE OF THE DEPUTY PRIME MINISTER, LONDON

IBM Buys Online Procurement Market

IBM last week said it will acquire KeyMRO, a company based outside Paris that operates an e-procurement marketplace. The deal is aimed at boosting IBM's ability to provide outsourced procurement services to customers in Europe and North America. Financial terms weren't disclosed.

KeyMRO, which has a U.S. subsidiary in Florence, Ky., is a joint venture among three industrial companies in France: Schneider Electric SA, Rhodia and Thomson. IBM said it will provide procurement services to the founding companies for seven years after the acquisition is completed.

The purchase of KeyMRO is part of IBM's expansion into business process outsourcing, said Dominique Raviart, an analyst at Ovum Ltd. in London. KeyMRO buys nonmanufacturing goods such as IT hardware and office supplies, as well as travel, maintenance and professional services.

The procurement operation will be integrated with IBM's Business Consulting Services unit.

New Indian Bank Taps Wipro for All IT

WIPRO INFOTECH, the Wipro unit that provides outsourcing services to companies based in India, last week announced a seven-year contract to handle all IT operations for Yes Bank Ltd., a new private bank in Mumbai. The value of the contract wasn't disclosed.

The outsourcing deal covers all of the bank's hardware, branch-office systems, networks, data center operations and backup procedures with "stringent service-level guarantees" and round-the-clock technical support, Wipro said in a statement.

The contract is based on a pay-per-use model, so IT capacity and expenditures can grow on a predictable path as the bank's business grows, according to Wipro officials. **51480**

Compiled by Mitch Betts.

Briefly Noted

The U.K. government will launch a parliamentary inquiry next year into the feasibility of electronic voting and electronic voter registration. The Constitutional Affairs Committee in the House of Commons is requesting that public testimony be submitted by Jan. 14.

■ LAURA ROHDE, IDG NEWS SERVICE

SAP AG has begun construction of a research and development campus for 450 software developers in Shanghai. The facility will help the software vendor serve one of its fastest-growing markets. SAP said that more than 800 companies and multinational subsidiaries in China use its products.

■ JOHN BLAU, IDG NEWS SERVICE

Electronic Data Systems Corp. and Xerox Corp. last week jointly announced a $40 million contract to provide managed document services to nearly 200 of Barclays PLC's offices in the U.K. The 66-month contract expands on a $350 million IT services deal that EDS signed with London-based Barclays in June 2003.

Continued from page 1

NYSE

will ultimately include 3,000 handheld devices custom-designed by IBM and linked over a wireless network to Linux workstations and HP-UX servers and to a mainframe-based back-end system running IBM's WebSphere middleware, DB2 databases and Tivoli management software.

IBM beat out bids by BEA Systems Inc. and Microsoft Corp. for the contract, said Willy Chiu, vice president of IBM's On-Demand Solutions Lab. Terms of the deal weren't disclosed, though Chiu said it was worth many millions of dollars and can be counted among the three most valuable IT contracts ever awarded by the exchange. Analysts estimated its worth at between $100 million and $200 million.

The IBM contract represents the first time the NYSE has used a third-party developer to build a trading system. Roger Burkhardt, the NYSE's chief technology officer, said he's "very happy to be out of the business of writing middleware." The IBM work won't result in IT layoffs, he said.

Work on the back-end system has been completed, and 650 of the handheld devices have been distributed so far, Chiu said.

Response to Pressure

The NYSE has been under pressure from all-electronic exchanges such as the Nasdaq Stock Market, which can perform trades faster. With this move, the venerable stock exchange is moving to become a hybrid that allows electronic trading and traditional floor trading to take place side by side.

"Part of the role of technology at New York Stock Exchange is to handle increasing volume with the same number of people," Burkhardt said. He said the NYSE and IBM put the new system through the most exhaustive tests ever undertaken at the exchange for any technology, spending more than a year testing before going live last month.

The NYSE's TradeWorks order management system replaces the Broker Booth Support System, which was based on C++ and built internally to connect floor traders to the brokerage back offices that executed the trades. The old system allowed brokers to send only one message at a time and didn't allow links to more than one system. TradeWorks can send three messages per second to telemarketers, broker-dealers and customers.

The older handhelds were consumer-grade products that required hourly battery changes and weren't tightly integrated with the back-office systems. The new handhelds offer more-powerful batteries, larger screens and 40 times more throughput than the earlier devices, Chiu said.

Under the new system, floor traders send data to traders, brokers and clerks using floor-based workstations to relay real-time market data from the exchange floor to trading desks upstairs. Data backup is managed by IBM's Tivoli software. A record of trades and customer information is captured in a DB2 database on an IBM zSeries mainframe on the back end, Chiu said.

NEW WIRELESS handhelds may put an end to shouts of "Buy" and "Sell" on the NYSE trading floor.

Analyst Dave Cearley at Stamford, Conn.-based Meta Group Inc. said the project marks a turning point for Java. "The interesting part is not simply what this provides to the New York Stock Exchange, but what this means for the larger position in the market for Java," he said. "This is not simply a statement of the scalability of IBM's proprietary technologies. It's also about showing the scalability and reliability of Java environments." **51516**

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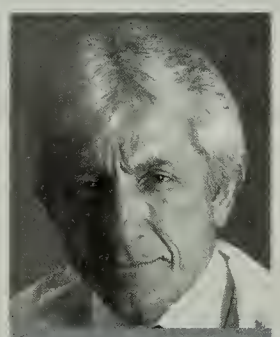
DON TENNANT

Inconsiderate Considerations

I WAS TALKING the other day with Damien Bean, former vice president of corporate systems at Hilton Hotels, about last week's $10.3 billion Oracle/PeopleSoft merger. Bean, a poster-child PeopleSoft user while at Hilton, summed up his thoughts on the deal in the form of an analogy: "It's Sperry buying Burroughs all over again," he said. "You've now got two fundamentally competing approaches to design and architecture and everything else. Size was a goal in and of itself, and the amalgamation of product lines was a secondary consideration."



DON TENNANT is editor in chief of *Computerworld*. You can contact him at **don_tennant@computerworld.com.**

I love the analogy, because I think it's spot on. Except in this case, I doubt seriously that integrating the product lines ranks as high as No. 2 on the considerations list. In fact, I'd venture that Oracle's top-five list looks something like this:

No. 1: Boost Larry Ellison's ego.

No. 2: Boost Larry Ellison's stature.

No. 3: Boost Larry Ellison's bank account (and those of his co-execs).

No. 4: Diminish SAP's dominance in the business applications market.

No. 5: Further marginalize already marginal Unix databases. (If you're running PeopleSoft on Sybase or Informix, don't expect your PeopleSoft reps to be quite as chummy as they were before.)

Of course, what's important isn't what it means for Ellison, but what it means for the merged companies' users. The best thing about last week's deal, from a user perspective, is that at least some of the uncertainty is over. We knew when PeopleSoft CEO Craig Conway got the boot in October [QuickLink 49819] that the deal was going to happen — no one could possibly have thought that the grandfatherly Dave Duffield, the company co-founder who took back the CEO title after having held it for the first 12 years of PeopleSoft's history, was equipped to battle Ellison. Yet, there was still no telling when it would happen — the acrimonious merger "discussions" could easily have dragged on interminably. At the same time, there's surely just as much uncertainty now as there was before about whether Oracle will live up to its promises to properly support PeopleSoft customers, and about exactly how the two product lines will be positioned and ultimately integrated.

Or *whether* they'll be integrated, for that matter. As Bean noted during our discussion, the approaches that Oracle and PeopleSoft take to systems design are fundamentally different. While Oracle builds applications very close to its core database technology with stored procedures and triggers, PeopleSoft relies on a lot more code to enable its apps to run on multiple platforms. Reconciling that in the near term would be awfully tough, so PeopleSoft users will have to hope that Oracle is serious about supporting their apps as a separate product line.

That's why a lot of smart PeopleSoft shops have already upgraded to the most recent version of the application suite. They have the luxury now of sitting back and waiting for the dust to settle, which could take a while because the dust storm will probably be pretty intense. For one thing, it's unlikely that an efficiently functioning joint management team — a prerequisite for any real hope of successfully integrating the companies — is going to be formed anytime soon. Users can expect to see an exodus of PeopleSoft execs who have made no secret of their distaste for working with Conway and who will find that Conway was just a Larry Ellison Mini Me when it comes to obstinacy and egoism.

Unfortunately, users don't appear to have gotten a whole lot of consideration through any of this. And that's a considerable concern if ever there was one. **51488**

Don Tennant

DAVID MOSCHELLA

In-house IT Still Jacks of All Trades

DURING THE 1960s and '70s, vendors such as IBM, Burroughs, Sperry and NCR were largely vertically integrated companies. They built hardware, wrote software, and sold and serviced their own systems. This go-it-alone model enabled the IT industry to prosper and grow into a giant global business.

But during the 1980s, a more specialized approach took hold, with suppliers focusing on particular layers of a newly emerging IT industry value chain — Intel in microprocessors, Compaq in PCs, Microsoft in software, Cisco in networking, Seagate in storage. This new, horizontal model came to dominate the IT business, and the old, vertically integrated systems companies largely faded away.

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During the 1990s, the horizontal model spread to the telecommunications segment of the IT industry. Most notably, the massive, vertically integrated company that was once AT&T began to break apart, as each piece of the telecom business — equipment and local, long-distance and wireless services — emerged as a distinct entity, and once again a layered value-chain model took hold. Today's AT&T is but a shadow of its once great self, and eventually it could vanish altogether.

In both computers and telecommunications, the resulting horizontal industry structures proved to be both more efficient and more innovative, as intense competition and powerful scale economies generally took hold. It's highly unlikely that the marvels of today's PC, Web and mobile industries would ever have emerged so quickly if the older, vertically integrated structures had stayed in place.

This history remains relevant because there's one big part of the IT industry that still has many characteristics of the vertically integrated era, and

that, of course, is the corporate IT organization itself. In-house IT organizations are still largely in the business of building systems, writing software, installing networks and providing the necessary support services.

Indeed, in many ways, customers have inherited the downside of today's horizontal supply-side model. There are now plenty of good products and services to buy, but the burden of integration has fallen mostly to the user. Unfortunately, the combination of legacy code and overwhelming complexity in most IT environments has made the modern IT organization the least-efficient IT industry sector. Many organizations are drowning in necessary but low-value work.

Today, there are few more important IT industry questions than if and when the power of the horizontal model will come to define the customer side of the IT business. Clearly, some movement in this direction is now occurring. ASPs, utility computing, software as a service, contract services, Web services, outsourcing and the use of the public Internet are all examples of how specialized providers can take over work that otherwise would have been done in-house.

But compared with the supply side of our business, the rate of change has been much less dramatic. There haven't been any landscape-altering equivalents to the launch of the IBM PC or the deregulation of the telecom industry. It's hard to imagine what such an equivalent might actually look like.

Recently, there's even been a bit of a backlash, with some companies promoting the virtues of keeping all IT work in-house. That says a lot about the state of today's overly complicated IT industry. But until customers can acquire, use and integrate information technologies as efficiently as suppliers can build them, the user community will continue to bear the bulk of IT industry frustration. There's no bigger IT industry challenge. **51412**

PIMM FOX

Microsoft Plays the Ethics Card

LONDON

I'M NOT A BIG FAN of people who use pirated software, and I have managed in the course of my online life never to have shared or downloaded a song or movie.

PIMM FOX is a London-based journalist. Contact him at **pimmfox@pacbell.net.**

But does this make me more ethical than the 43% of the British public who admitted that they own counterfeit goods, or the 23% who said they willingly have bought pirated software?

I don't know. It just seems to make me confused, because I find myself on the side of a mega-multinational software vendor in its defense of intellectual property rights, even as I find myself doubting its claims that pirated software means lost revenue for the U.K. government. According to Microsoft, when those Britons buy pirated software, it's not just the company that suffers; no, the British government and all that it supports are hurt, too, because no taxes are paid. This seems reasonable enough, but there's more to it than that, as I'll explain.

Believe it or not, Microsoft is likening itself to small-scale coffee growers in Third World countries.

What's behind this? A Microsoft-sponsored survey by YouGov that basically proves that people are a bundle of contradictions.

On the one hand, 89% of the sample group said they perceive themselves to be ethical consumers, defined in the survey as people who try to buy free-trade coffee and non-genetically-modified food. But a lot of people in this group still don't seem to mind using the odd bit of pirated software. Microsoft is trying to make the connection between itself and coffee growers, claiming that there is a double standard when it comes to software and free trade.

Ah, contradictions and double standards — two topics that Microsoft happens to be an expert on.

About those taxes. Microsoft makes software in the Republic of Ireland, where taxes on profits are lower than those in the U.K. The U.K. operations are really just a marketing vehicle for Microsoft software.

So would buying genuine Microsoft software boost the tax revenues of the U.K. government? Would paying full price for authentic versions of Windows and Excel help Britain build new hospitals?

Not likely, because most business users get to claim back the 17.5% value-added tax that is tagged onto each software purchase.

As for Microsoft, it ships most of the software that's destined for Europe directly from Ireland. If the company is so dedicated to paying taxes, it could sell its goods from the U.K. That would help the government here.

Microsoft tries to make the point that intellectual property is the same as coffee but strangely doesn't seem to recognize that pushing IT property rights isn't the same thing as trying to ensure that small-scale farmers earn a living wage. "People who pay a little more for free-trade coffee hope that at least part of the premium will end up in the pocket of the grower," says Robin Littau, general manager of Don Pedro Coffee in Houston. Microsoft knows it can't persuade people that they should make sure part of the price of the software they buy ends up in the pocket of Bill Gates, so it sets up the U.K. tax man as the injured party.

As I said, I'm no fan of the movement that believes software, music and video are free for the sharing without in some way compensating the author, musician or artist.

But what I don't like even more is a corporate hypocrite. **51427**

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READERS' LETTERS

Sun's Java Stance

SUN HAS POSTED the source code for the next big version of Java, code-named Mustang, on the Internet under the Java Research License ["Open-Source Java?" QuickLink 50897]. It is free for noncommercial use and provides developers a chance to look before they leap. Sun recognizes the need to simplify its myriad license policies and constraints, which have been confusing. It's just that Sun, as a for-profit organization, is trying to figure out how to make money for its stakeholders, notwithstanding a desire to gain political points.

Relatively speaking, Sun remains the biggest contributor of code to the open-source movement through its work on GNOME, StarOffice and other open-source software and its association with Collab.net and various open-source resources. The company is also moving elements of its Solaris Unix operating system there, convincing many of the third-party owners of the 250-odd intellectual property elements to go along. Sun has invested upwards of $1 billion, 10 years and about 10,000 man-years in the creation of Java. Should it expect any returns on the resulting intellectual property, or should it convert Java into a pure open-source project, giving up all its control? Owners of the 3 billion Sun shares would prefer the former.

Protecting the intellectual property is important for Sun's future. Brand protection through licensing is important for American interests in the international context. Ensuring compatibility control and coordinated development of the Java platform is in the interest of all humans. The licensing structure is intended to accomplish all of the above. The instructional books that Sun and others have authored on the Java programming language and platform and the training programs leading to "certified" Java developers all feed a coordinated development of the Java trajectory. Sun's Java licensing policy is intended to effectively foster compatibility, innovation and profitability, all at the same time. Research-use licenses are free and are less restrictive in order to foster rapid innovation. Commercial licenses have fees and more restrictions. By applying an elaborate control system, Sun has attempted and largely succeeded in preventing market fragmentation.

Nishat Khan
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An E-voting Future

TECHNICAL professionals and grass-roots political activists are highly skeptical of Pimm Fox's view that Internet voting is in our future ["Next Time, an Internet Electorate," QuickLink 50462]. Before the Internet can be an acceptable alternative to citizens trudging off to polling locations, significant changes must occur. First, the onslaught of self-propagating, malicious programming must be neutralized. Otherwise, elections may be manipulated. Second is the question of extending Internet voting to the technologically illiterate, the computerless and the homeless. Unless these issues are dealt with, reliance on the Internet would make the current state of vote fraud look like child's play.

Ray Babecki
Scientist, Fords, N.J.

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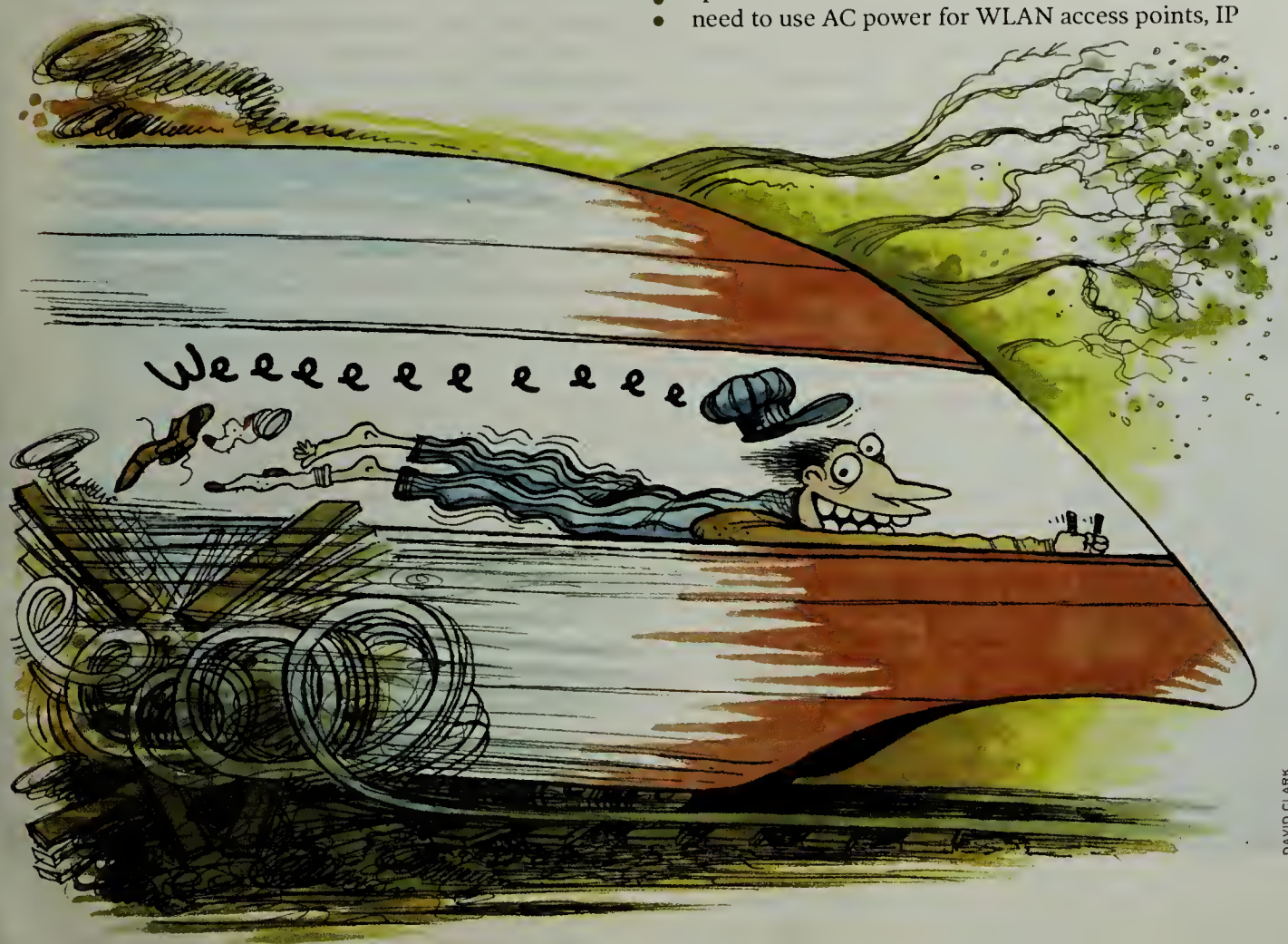
EMERGING TECHNOLOGIES Update

PCI Express and 802.11g appear to be speeding toward success in the enterprise, while power over Ethernet is making steady progress in selected situations. But it's been slow going for Bluetooth. By Robert L. Mitchell

PCI EXPRESS was designed to eliminate I/O bottlenecks for everything from video graphics to 10Gbit/sec. Ethernet adapters. 802.11g offered a backward-compatible way for enterprises to upgrade their 802.11b wireless LANs to higher speeds. Power over Ethernet would eliminate the need to use AC power for WLAN access points, IP phones and other equipment. Bluetooth promised to end cabling clutter on the desktop.



DAVID CLARK

Computerworld has covered the introduction of each of these emerging technologies over the past two years. In that time, some have gained ground; others have fallen short. Here's a report card on where each stands.

PCI Express: Adding Fast Lanes

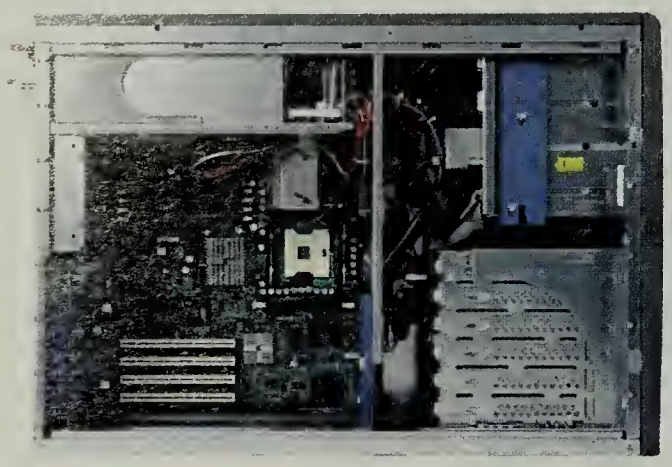
After more than a year of slow, steady progress, PCI Express, a new I/O technology designed to replace the Peripheral Component Interconnect expansion bus used in PCs and servers, is ready to roll. Intel Corp. released the first PCI Express motherboard and chip sets this past summer, systems began shipping in August, and a few adapters are now available.

Developed through the PCI Special Interest Group, PCI Express (also called PCIe) replaces the PCI bus with a serial architecture that uses up to 16 sets of wires, or "lanes," to support bandwidth ranging from 500MB/sec. to 16GB/sec. For the most part, PCI Express is designed to solve I/O bottlenecks that most users have yet to experience, but IBM, Hewlett-Packard Co. and Dell Inc. have all rolled out servers that include both traditional PCI and two or more "4x" (four-lane) PCI Express slots to stay ahead of user demand.

On commodity servers, PCI Express appears to have won a battle with PCI-X 2.0, a competing 2GB/sec. standard once supported by HP. "Ethernet and storage-controller vendors started flipping from PCI-X 2.0 over to PCI Express, so we're moving with the market," says Colin Lacey, director of market strategy for the ProLiant server line at HP.

But PCI-X 2.0 will arrive on high-end servers next year, both because PCI Express isn't fully mature and PCI-X 2.0 is likely to be available sooner than comparable 8x implementations of PCI Express, says Tom Bradicich, chief technology officer for IBM's xSeries and BladeCenter servers. Eventually, even these systems will migrate to PCI Express, he says.

PCI Express is already replacing the accelerated graphics port for high-end graphics on PCs. For most other I/O needs, however, PCI Express is overkill. On servers, early PCI Express adapters focus on technologies likely to max out current 1GB/sec. PCI-X bus, including 10 Gigabit Ethernet, RAID con-



THE SAME BUT DIFFERENT: HP's ML 350 series servers combine four traditional PCI-X slots (white slots in photo) and two 4x PCI Express slots (top, in black). While the slots look similar, the 4x PCIe slots, at 2GB/sec., deliver about twice the bandwidth. HP's DL series servers support PCIe by way of an optional PCIe "riser card" adapter. Other server vendors offer similar configurations.

trollers and Fibre Channel. But server buyers should be cautious, says Nathan Brookwood, an analyst at Insight 64 in Saratoga, Calif. "As long as they are not finding PCI-X to be a bottleneck, it's still a preferred solution because it's tried and proven," he says.

PCI-SIG is also working on a server I/O module specification that Tony Pierce, the group's chairman, describes as "an external, hot-pluggable form factor designed specifically for servers." And a revised specification, due to be published in 2005, will double the current data rate. For now, however, PCI Express slots are likely to creep into servers in increments. "The transition has begun," Brookwood says. But he doesn't see it taking off in a big way until at least 2007.

802.11g: One Step Ahead

The 802.11g 54Mbit/sec. WLAN specification was designed to provide an upgrade path for 11Mbit/sec. 802.11b networks. While it has sold well in the consumer market, businesses have largely stayed with the slower but more established 802.11b.

802.11g delivered what the 54Mbit/sec. 802.11a standard couldn't: backward compatibility for 802.11b users. But many business simply haven't needed the extra bandwidth, says Ken Dulaney, an analyst at Gartner Inc.

As the technology has matured, however, vendors of enterprise-class WLAN products have replaced b-mode-only access points (AP) with g-mode units, and some businesses are taking advantage of the faster operating mode. Embarcadero Systems Corp. is installing 802.11g in all new sites, says John Montgomery, vice president and chief technology officer. And new applications at the Alameda, Calif.-based company's container shipping terminals require more bandwidth, so he's investigating upgrades for b-mode APs as well. While 802.11a's shorter range would have required adding more APs for the same coverage area, with 802.11g, Montgomery says, he should be able to upgrade just the existing b units. "We are trying to do a one-to-one swap," he says.

As bandwidth needs climb, the long-ignored 802.11a is starting to garner interest as well, says Graham Melville, director of product marketing at Symbol Technologies Inc. It runs in the less-crowded 5-GHz spectrum, and with 11 channels to 802.11g's three, 802.11a APs can be placed closer together without interference. That means 802.11a can support more users at a higher aggregate bandwidth. Melville says the technology is ideal for crowded offices, where power users rely on wireless as their primary connection into the company network.

An even faster variant is on the way: 802.11n is expected to quadruple current WLAN speeds. But the specification is in the early stages of development, and mature products are unlikely to arrive before 2007. Says Dulaney, "If you want higher speeds, go to 802.11a, since there is a lot more capacity at 5 GHz."

Beyond G: 802.11n

The next-generation Wi-Fi standard, currently in negotiation in IEEE Task Group N, will boost nominal speeds beyond 200Mbit/sec. (Actual throughput is typically half the published rate.) Ratification of the final standard isn't expected before the end of 2006, and enterprise-quality products aren't likely to arrive before 2007. Although the group has yet to settle on a technical proposal, the 802.11n product parade has already started: Belkin Corp. released a "pre-n" WLAN adapter and router in October.

PoE: Ethernet Powers Up

Who needs an outlet? Driven by the need to cost-effectively power IP phones and WLAN APs, power over Ethernet (PoE) has quietly moved into the mainstream since the IEEE 802.3af standard was ratified in 2003. PoE is now a global standard for supplying low-voltage power to networked devices by way of Ethernet cabling. "Almost every enterprise I talk to is looking at putting PoE in their wiring closet," says Zeus Kerravala, an analyst at The Yankee Group in Boston.

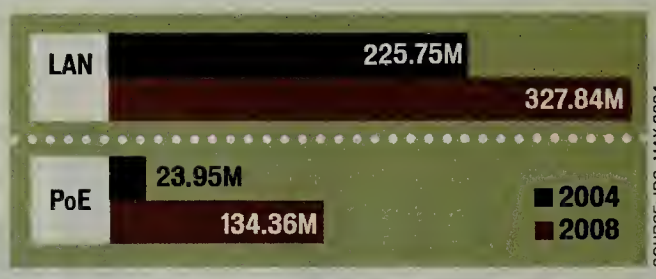
But that doesn't mean PoE is going in across the board. While virtually all wireless APs and IP phones now can support Ethernet power, PoE is offered only in high-end switches — about 20% of those on the market — and they sell at a 15% to 40% premium, says Rachna Ahlawat, a Gartner analyst. But she expects the premium to disappear over the next few quarters as PoE becomes a "checklist item" for all switches.

Only 14% of all 10/100Mbit/sec. Ethernet ports shipped with PoE in the first half of 2004, says Ahlawat. And with businesses now keeping existing switches longer — up to seven years — many companies may hold off on adding PoE for a few years or choose to add midspan devices that can send power to selected ports without replacing the switch. Nonetheless, IDC predicts that about 41% of all Ethernet port shipments will be PoE-enabled by 2008.

Embarcadero uses PoE switches to support IP phones. "We're still using traditional methods to power our network switches and WLAN access points," says Montgomery. But he's considering PoE to support new AP and closed-circuit television camera deployments.

PoE is slowly gathering momentum, says IDC analyst Maximilian Flisi. "It will be a gradual, steady phase-in," he says.

Worldwide LAN and PoE Switch Ports



NOTES: Ports counted include both 802.3af and proprietary standards; data considers only embedded (end-span) PoE, not midspan devices.

Bluetooth: Peripheral Player

Bluetooth promised to eliminate cable clutter by connecting devices ranging from handhelds to printers over a low-power, 1Mbit/sec. wireless personal-area network (PAN). While Bluetooth has made inroads with consumers, it has failed to catch on in the enterprise.

Shipments of Bluetooth-enabled products have passed 3 million units per week, according to Bluetooth SIG Inc., but many of them are cell phones that are sold in Europe. Bluetooth is used in handheld computers, in some cordless headsets and hands-free cell phone kits, and for some specialized purposes. For example, United Parcel Service Inc.'s truck drivers use the technology to allow handheld computers that are environmentally sealed against moisture and have no physical external connection to connect wirelessly to printers. But overall, it has faltered as a cable replacement technology.

Acceptance of Bluetooth has also been slowed because of concerns about interoperability and security. Bluetooth SIG offers interoperability testing, but users still must rely on its product matrices to ensure that different devices have profiles that will work together. "I call Bluetooth a failure because it doesn't deliver ease of use," says Gartner's Dulaney.

Mike Foley, executive and technical director of Bluetooth SIG, says improvements are on the way. The specification will support 3Mbit/sec. by the end of the year, and it will include security features to close some well-publicized vulnerabilities, enhance interoperability and improve power management. It will also support quality of service and multicasting to improve communications with multiple Bluetooth devices [QuickLink 50590].

Today, however, Bluetooth remains essentially a consumer technology. It also faces competition from the emerging ultrawideband 100Mbit/sec. PAN specification. Ultimately, UWB could replace Bluetooth, says Roger Kay, an IDC analyst. "If UWB is capable of sending large amounts of data rapidly over short distances, there is no reason why it can't send small amounts of data as well." **51286**

WHY PCI WON'T DIE

Find out why the legacy PCI expansion bus standard is here to stay for a while:

QuickLink 51291
www.computerworld.com

BRIEFS

Vintela Expands VMX Capabilities

■ Vintela Inc. in Lindon, Utah, has unveiled Version 1.1 of its Vintela Management Extensions (VMX) application. The upgrade improves and expands the use of Microsoft Systems Management Server 2003 with non-Windows operating systems, including Unix, Linux and Mac OS X, says Vintela. VMX is an administration console that snaps into SMS, allowing the management of non-Windows clients natively from within SMS, according to the vendor. VMX starts at $1,995, with non-Windows server pricing at $125 each and non-Windows workstation pricing at $75 each.

Observer to Provide Additional Metrics

■ Network Instruments LLC announced the release of Observer 10.1 for network management, analysis and troubleshooting. The upgrade adds metrics for reporting network performance, capabilities for automatic report delivery and packet scheduling, enhancements for remote network analysis, and additional monitors for 802.11a, b and g networks, the Minneapolis-based company said. Pricing starts at $995.

Cognos and Acorn Partner on CPM

■ Last week, Cognos Corp. and Acorn Systems Inc. announced an alliance to deliver activity-based costing and corporate performance management (CPM) technology. The alliance will pair Houston-based Acorn's Profit Analyzer product, which is designed to provide enterprise cost and profit metrics, with the business intelligence components of Cognos' CPM suite. Burlington, Mass.-based Cognos will jointly market its business intelligence, planning and forecasting software and scorecarding technology with Acorn to the financial services, distribution, consumer packaged goods and retail markets.

CURT A. MONASH

Make a Technology Plan for 2005

THE END OF THE YEAR is a traditional time for re-evaluation of, well, just about everything. But one area in particular that gets re-evaluated in most organizations is technology strategy.

Many of the technology strategy issues you need to address in 2005 fall into five overlapping areas: server platform architecture, e-mail architecture, security architecture, enterprise analytics, and customer interaction technology. Here's a quick planning checklist of the top issues in four of the areas. (I'll discuss enterprise analytics in a future column.)

CURT A. MONASH is a consultant in Acton, Mass. You can reach him at curtmonash@monash.com.

Server platform architecture. As usual, the most interesting issues in server platform architecture relate to database management systems. Included among those is this huge question: Is the row-based relational model approaching the end of its useful life? The evidence in favor of nonrelational and/or column-based DBMS architecture keeps mounting — especially for XML-based applications. And while top-of-the-line DBMSs are still clearly superior for data warehousing, complex queries or nontabular data management, often that's exactly because they're getting increasingly far from simple third-normal-form data structures. Yet conceptually, there's little reason to see any limit to relational systems' continued evolution and, hence, continued market domination.

Meanwhile, at the other end of the DBMS spectrum, what about commodity database management systems? They do a good job for many smaller online transaction processing applications. Indeed, between MySQL and the once-excellent Ingres, even open-source DBMS offerings may warrant consideration.

But there's a yet bigger set of concerns: Just which kinds of platforms are "strategic" in your enterprise? Viable candidates include traditional hardware, storage hardware and software, DBMS, operating systems, application servers, enterprise information integrators and several kinds of management superstructures. And are the choices different for the idealized grid/blade future and the big-central-server present?

One good choice of strategic center is fourfold: DBMS + analytics engine + operating system(s) + network management infrastructure. But there are many viable alternatives.

E-mail architecture. Now here's a depressing subject. At most companies, e-mail represents a huge cost. Employees each spend hours per day on e-mail, grumbling all the way. E-mail administration is a huge nightmare. And vendors aren't helping much — Microsoft promised key fixes over a decade ago that it isn't even close to delivering.

So how about a radical gambit? E-mail is a constant processing stream with serious security vulnerabilities and regrettably little in the way of DBMS underpinnings at this time. That's exactly the kind of processing that does well on dedicated appliances, rather than general-purpose computers. And you shouldn't just consider e-mail appliances; e-mail outsourcing is also worth a serious look.

It's also time for serious planning in the area of e-mail archiving. Regulators want you to keep huge amounts of e-mail; lawyers, for very similar reasons, want you to throw it all away. Meanwhile, a tremendous fraction of an organization's knowledge is buried in all that e-mail, and archiving technology offers better potential access to it all the time.

Security architecture. At most organizations, security architecture is a nightmare. Dedicated security appliances (which work well), centralized security management (which doesn't) and general network operations management systems don't play together nearly as well as they should. Meanwhile, wireless networking and employees' personal Internet use punch ever more holes in the security perimeter.

You can't fix the whole shebang, but you can and should do at least this: Break your network into conceptual pieces, then move quickly to secure the most critical pieces as tightly as you can. Dedicated intrusion-prevention systems, network segmentation firewalls, newfangled application-level security appliances and so on — you can't protect your whole network with those technologies, but your key databases can be protected very well.

Another area in which your planning should probably rev up (it's OK for implementation to be slower) is authentication and identity management. LDAP integration will eventually be a necessity and, despite the inherent hassle, many enterprises will eventually adopt smartcard/badge-based two-factor authentication as well.

There are other large, troubling challenges that I could mention — especially issues relating to outsourcing. But since this is the holiday season, I'll end on a happy note instead.

Customer interaction technology. This area should be on your list for re-examination every year, and you should be happy about it. Technology for managing customer interactions keeps getting better — on the Web, in call centers and even in hoary old direct mail — and the impact on profits is almost immediate. So run, don't walk, to your marketing executives, and ask them to dream up a technological wish list. Chances are, you'll be able to give them a lot of what they want.

But this can all wait until the new year. Until then, have a great holiday season.

51424

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RELATIONSHIP MANAGERS ARE CRUCIAL LIAISONS BETWEEN TECHNOLOGY AND BUSINESS, BUT WITHOUT PROPER SUPPORT, THEY CAN END UP BEING DISTRUSTED BY BOTH.

BY MARY BRANDEL

PHILIP ANDERSON

BRIDGING THE GAP

SOME JOBS should come with small print attached, just like the drug advertisements you see on TV. Take the job title "relationship manager," whose warning label might read: "Requires great sense of humor and high tolerance for ambiguity. Only true diplomats should apply. Do not attempt unless fully supported by the organizational structure."

The path of the relationship manager is a tricky one, fraught with political potholes and organizational obstacles. Companies create this position — also called account manager, client manager, customer liaison and business information manager — to help close gaps between IT and the business, whether they be gaps in communication, image, credibility, trust or all of the above and more.

Relationship managers are called upon to coordinate IT activities across a given business unit and drive initiatives that position the unit for competitive success, according to Marc Cecere, an analyst at Forrester Research Inc. in Cambridge, Mass.

Some people hired into this role have spent their careers in IT but also have solid business acumen and deep knowledge of business processes. Others are senior-level, technology-literate business people willing to learn the inner workings of IT.

But when well-meaning companies slap a relationship manager on a rift between two warring parties like a Band-Aid and hope for the best, things can go wrong. "Where there's a deep-seated lack of IT/business alignment and the relationship between the client and IT is strained, trying to bring in a relationship manager to paper over some of these problems is not going to be successful," says Jim Hightower, a fellow at Cutter Consortium in Arlington, Mass., who had a relationship manager role as an IT manager at a small utility.

"If the relationship between IT and the business is already unstable, the relationship manager is just someone who's putting out fires and smoothing out problems," agrees Craig Symons, a Forrester analyst. "That's not going to get you very far."

Indeed, while 40 out of 100 companies surveyed by Forrester in August said they have a relationship manager function, there are many ways to get it wrong, Cecere says (see sidebar below).

Hiring the right person is the first challenge. It's a rare bird who can hobnob with techies and business wonks alike and also has the people skills to resolve conflict between the groups, earn credibility throughout the organization and forge a productive alignment that enables IT to meet business objectives.

Take Nan Simon, a relationship manager with the title of business information manager at Novartis Pharmaceuticals Corp. in East Hanover, N.J. She came from IT but had a lot of background in financial systems. "My first love was systems analysis and working with business partners to understand their requirements," she says.

Or look at Andrew Sheppard, director of relationship management at Allegis Group Inc., a contract services provider in Hanover, Md. He has been in IT for 18 years, but he also holds an undergraduate degree in business management and psychology and a master's degree in IT management.

Negotiation Skills

Relationship managers must be crack negotiators. "There can be competing objectives, and you have to defuse emotion to help make a fact-based decision," says Gina Piscopo, who has a relationship manager role as a director in the marketing technology area of Allstate Protection Technology at Allstate Insurance Co. in Northbrook, Ill. For instance, when IT was struggling with a tight deadline for a business project, Piscopo stepped in to ask people on the business side if they could scale back the functionality of what they wanted delivered by that deadline.

That kind of active negotiating can lead to some sticky situations. "You have to have thick skin," says Joan Mann, associate professor of IT at Old Dominion University in Norfolk, Va. "You have to be able to roll with the punches and be very comfortable in the face of uncertainty."

Mediator, translator, persuader, facilitator, expeditor — these are roles Mann says relationship managers need to play. Not to mention the languages they need to speak. "To earn the respect of IS, you have to speak at the router, T1 and application code level," says Sheppard. "With the business people, it's important to talk at the profit/loss and deliverables level."

But the relationship manager can't play all these roles on his own. Most companies find that they need to tweak organizational charts to provide the support they need to straddle the space between IT and the business; otherwise, the relationship manager can easily fall into thin air. "I have not seen the role be successful when it's a standalone liaison role," says Mike Roche, vice president of Allstate Protection Technology.

Allstate began hiring relationship managers two years ago. At the time, IT was retooled from a shared-services organization with an admitted "arm's-length relationship with the business," Roche says, to a group with a CIO and dedicated IT staff for each of the two major arms of the company.

Relationship managers were installed to serve as liaisons between IT and the business functions, but the setup was only somewhat successful, Roche says. The problem, he determined, was that the individuals in these roles had no accountability for delivering on projects. "It's easy to be an order taker and create demand without having any indication of what's reasonable from a delivery standpoint," he explains.

Now, the relationship managers have teams of developers and project managers assigned to them, and — most important — they are responsible for achieving measurable results. "We expect these lead people to be innovative in terms of process improvements," Roche says.

Without that kind of accountability, he says, the relationship manager stands no chance of earning credibility and may even create a layer of redundancy. "If they're pushing through requirements but don't understand the technology that supports it, someone has to rework everything they do," Roche says.

The evolution of the role at Allstate is not unusual. "It's not like you can put in a magical solution on Day 1," says Rob James, CIO at Novartis. "You have to build support processes and fine-tune things as you move forward."

Novartis decided three years ago to move away from its centralized IT organization to one whose initiatives are driven and funded by the business units. Each business function was assigned a relationship manager, called a business information manager, or BIM. Several centralized IT groups remained to support cross-enterprise needs.

At first, the BIMs worked alone or in small teams, but as demand grew, BIM groups expanded to include dedicated project managers, developers and support staffers. The new structure frees them to focus on strategic issues. "I'm not a lone ranger out there," says Simon, who is a BIM for three groups at Novartis. "If I get a request, I have control over how quickly I can respond because I have resources at my disposal."

"Not all these things were in place from the start," James says. "The opportunities will continue to be driven by what the business wants us to do."

At Allegis, the relationship manager function has undergone a major transformation. Today, the role is solidly positioned in IT, but it wasn't always that way. Until 2002, Sheppard was one of five "business information officers" the company had embedded within its operating units. Sheppard and the others had no direct reports, and they reported to IT but were seen as extensions of the business.

While the overall setup worked well, the group had an unfortunate image. IT tended to view each of its requests as just another problem to solve, and the business people didn't like hearing why some of their IT requests weren't feasible. "Either way, we were seen as the bad guys all too often," Sheppard says.

With no support staff, Sheppard and his cohorts were also focusing too often on tactical issues, he says. "I wasn't doing the job that adds value to the whole organization, which is looking for the strategies and initiatives for the next year," he says.

Two years ago, during the economic downturn, Allegis dissolved all of its business information officer positions except for Sheppard's. Now, as the only relationship manager left, he supports the IT needs of all the operating companies and reports to the CIO. But he has three groups to support him with service-level agreements, day-to-day deliverables, new-process development and internal public relations. That support "allows me not to get stuck in the weeds," he says. "I can deal with the business side at a higher level."

These days, Sheppard feels he's seen as less of a bad guy, although as a relationship manager, you never really take off the black hat, he says. "When they don't hear what they want to hear, they're still unhappy about that," Sheppard says.

Like other companies with relationship managers, Allegis will continue to evolve the role as business requirements dictate. And having business support is the top priority for making the position work. Says Novartis' James, "You have to do this in total partnership with the business." **51088**

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RELATIONSHIP MANAGERS SHOULD:

- Have strong IT backgrounds, especially in current and emerging technologies.
- Have strong interpersonal skills, so they can interact with people and act as liaisons between users and IT.
- Report to IT, ideally to the CIO.
- Live in the business unit, at least temporarily, to develop domain expertise.
- Have the active and personal support and mentoring of the CIO.

SOURCE: FORRESTER RESEARCH INC., CAMBRIDGE, MASS.

POLITICAL PITFALLS AND ORGANIZATIONAL OBSTACLES

Relationship managers can help align IT projects with business goals, but they face many obstacles, says Forrester analyst Mark Cecere. Here are some of them:

- **Lack of business credibility.** Relationship managers who don't really understand business processes won't be included in planning meetings or IT decision-making. The business side may even see them as spies for IT. To avoid this, use senior IT people who have been assigned to business units for several years and embed them in their business units to enable extensive knowledge transfer.
- **Lack of IT credibility.** Relationship managers must be able to speak intelligently on the possibilities and limitations of a broad range of technologies. They should have years of experience in technology as well as an established network within the IT department so IT doesn't see them as users.
- **Lack of collaboration with other relationship managers.** If relationship managers don't work as a team, their knowledge of the business and IT will likely be fragmented. Collective knowledge, which can be shared in meetings, is valuable.
- **"Help-desk" image.** While one of their roles is to help with tactical and relationship-building tasks, such as fixing printers, they must focus on the strategic component of their work.

EXEC TRACK

Kobayashi Named CIO at Ross Stores

Ross Stores Inc. in Pleasanton, Calif., has appointed MICHAEL K. KOBAYASHI senior vice president and CIO. Kobayashi had spent the past 18 years at Accenture Ltd. He has been serving in an interim leadership role in Ross Stores' IT department since July.

PPG Industries Taps Trainham

JAMES A. TRAINHAM has been appointed vice president of science and technology at PPG Industries Inc., a Pittsburgh-based maker of paint, stains and sealants. He previously worked at Invista, formerly DuPont Textiles and Interiors, for nearly 25 years. He was chief technology officer at Invista from 2002 until the company's divestiture from DuPont Co. earlier this year.

Lewis Takes CTO Post at LiquidXS

LiquidXS.com Inc., a business-to-business marketplace for brand-name excess inventory in New York, appointed ALVIN LEWIS as CTO. He started at LiquidXS.com in March 2003 as vice president of IT. Previously, Lewis was vice president of technology at Atlantic Records Group (now part of Warner Music Group). Lewis has also created technologies for Citibank, Motorola Inc., Lucent Technologies Inc. and Solomon Brothers Inc.

Itemfield Appoints Ukelson as CTO

Itemfield Inc., a provider of data transformation software in San Mateo, Calif., appointed JACOB UKELSON as CTO. Ukelson joins Itemfield from IBM Israel's Global Technology Unit, where he was CTO and business development manager. Previously, he was a department general manager at IBM's Thomas J. Watson Research Center.

BARBARA GOMOLSKI

Cleaning House

HOUSEKEEPING has never been my strongest suit, but I've learned a few things along the way that have helped me stay somewhat organized. For instance, if I buy something new (whether it's a book or a shirt), I try to shed a similar item from my current collection. This helps me avoid clutter and keep the number of things in my house to a *somewhat* manageable level. Before I implemented this plan, I found myself acquiring too much stuff that I didn't use often enough to justify keeping.

Many IT organizations are in the same position when it comes to their application portfolios.

After years of acquiring software systems and not getting rid of anything, companies have severe application clutter. As a result, given their limited financial resources, they can't meet the current demand for IT unless they "turn off" some applications.

Put another way, they need to take something off their plates in order to make room for the next course.

This makes a lot of sense, actually. The practice of continually adding to the IT burden while holding IT budgets and head counts relatively flat is obviously problematic. Yet that's exactly what many companies have done since the early 2000s. And this practice is one of the reasons why many CIOs feel that they simply don't have enough resources to meet internal demand for IT.

Since most organizations add applications but rarely get rid of any, it's not uncommon to find that a large organization supports several hundred applications, including packaged and custom-developed systems. (I'm not counting shelfware.)

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Clearly, most CIOs could argue that an inventory and housecleaning of the application portfolio may be in order.

Turning off some existing systems sounds like a pretty straightforward solution, but it's not. When CIOs embark on a housecleaning project, they often find that it's fraught with challenges.

The following are some of the key problems that arise:

- Human nature is such that nobody wants to give up any application or service once they've had it. This is especially true for line-of-business managers and their software systems.
- Some systems are so old that nobody remembers who ordered them.
- IT lacks the political clout to make business managers participate in this exercise.

But there are ways to make this housecleaning less painful:

- Incorporate existing systems into the current application portfolio management framework. Many companies use portfolio management as a way to prioritize new IT initiatives.

Adding older systems to the portfolio allows IT to leverage its investment in portfolio management and tackle questions about existing applications with the same audience that participates in prioritization discussions.

- Provide business leaders with good information to make decisions about the future of applications.

For instance, if you were to ask a marketing director if he could live without a current order-tracking system, he would probably say no. But if you ask that same manager whether it's worth the $1 million a year that it costs to maintain the system for the 14 business people who use it, that becomes a different story.

In other words, give business people the information they need to weigh the costs and benefits of the decision.

- Sell the housecleaning initiative internally so that there is high-level buy-in. A chief financial officer or other executive champion can lend credibility to the effort. Such acceptance also gets IT out of the unenviable position of trying to take systems away from the business leaders and users.
- Try to have the consumers of IT bear the cost of IT. If business units don't directly pay for what they consume, it's very hard to get them to give up anything. If getting rid of older or underused systems is in your future, you may have to look at your IT cost recovery (chargeback) plan.

Ultimately, the solution to this problem is to get the business to assume ownership of the systems they have IT build. Ownership, of course, extends for the entire life cycle of the system, including retirement.

Unfortunately, many companies haven't reached the point where business units truly own the IT software assets. Until they get to this point, IT organizations should be prepared to offer some help with the cleanup of application portfolios. **51087**

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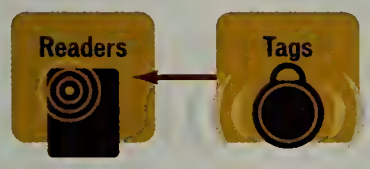
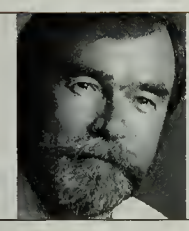
The Trouble With Tags
Spotty read rates make it clear that the "R" in RFID doesn't stand for reliability. PAGE 32



The Long and Winding Road
See how RFID data makes its way from the manufacturing floor to the retail supply chain at pioneering Gillette. PAGE 34



OPINION
Forget Wal-Mart
When it comes to RFID, everyone's talking about Wal-Mart. Columnist Mark Hall says that's a mistake. PAGE 38

RFID will eventually be a winner, but reliability is a vexing issue.

RAKEFET KENAAN

EDITOR'S NOTE

SPECIAL REPORT

Radio frequency identification technology, or RFID, will eventually help prevent inventory snafus and provide more visibility into the supply chain. But so far, the road to RFID nirvana has been paved with potholes. There has been a shortage of chips plus continuing problems with reliability, systems integration and immature technology. Analysts say that even the mighty Wal-Mart has had to relax its widely publicized January RFID deadline and grant some suppliers deferments to mid-2005 because of "extenuating circumstances."

Right now, RFID is all about extenuating circumstances. Consider the case of Goodyear Tire & Rubber, which is trying to figure out how to use RFID in the tire business. Goodyear executive Jonathan Rich points out that attaching an RFID tag to a box or pallet is relatively easy, but tires aren't shipped that way, so the tag has to be attached directly to a round, nubby product. "This is complex," Rich says, with some understatement, "because tires are flexible, the material properties can interrupt or distort the radio signal, they are shipped individually, and they are stored in arbitrary positions." And you think you've got problems!

We recognize that RFID isn't as simple as the airline magazines suggest, so this special report provides tips for dealing with RFID reliability problems and illustrates the complexity of the data flows at bellwether user Gillette. As IDC analyst Frank Gens put it, "We remain bullish on the long-term impact and value of RFID . . . [but] adoption is a more complicated and slower process than boosters often suggest." **51091**

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RFID Reality Check

Spotty read rates make it clear that the 'R' in RFID doesn't stand for reliability.

By Mary Brandel

GENE OBROCK, vice president of operations at Henkel Consumer Adhesives, says, "It may take five or six years, but eventually [RFID tags] will grow into the fabric of our organization, like UPC bar codes."

THE Trouble With Tags

WHEN YOU HEAR the litany of reliability and readability woes that plague radio frequency identification (RFID) pilot projects in the supply chain arena, you may wonder how anyone is making any progress with this technology at all.

Problems range from nonfunctioning tags to environmental conditions, such as temperature, humidity and radio frequency interference, that can render tags unreadable. The challenges continue as containers move through the warehouse and onto trucks — a process in which tags can be damaged or thrown out of alignment so they can't receive reader signals. And the list goes on: Forklifts cut cables, tag printers can't keep up with conveyor belt speeds, or adhesives that bond tags to containers fail at low temperatures.

"There's still a lot of immaturity in the technology," says Kara Romanow, research director at AMR Research Inc. She points to the 10% to 12% of tags that are "dead on arrival" — meaning they arrive at the user site in nonworking condition. Even when you weed out the bum tags, average read rates are still just 80% to 90%, she says. Some of this is the result of tag failure, but other common problems are incompatible tag/reader combinations and products that aren't suited for RFID. "Companies are trying to tag RF-unfriendly products, like soup cans and baby wipes," she says. "It really varies by product."

And yet, if you talk to RFID users like Gene Obrock, vice president of operations at Henkel Consumer Adhesives Inc. in Avon, Ohio, or David Adams, senior vice president of corporate strategy at TrenStar Inc. in Greenwood Village, Colo., you find that they are more optimistic. Yes, they agree, RFID systems are fraught with reliability pitfalls, some of which never go away. But the potential payback is so great, they say, that building an RFID-based supply chain that takes these issues into consideration is worth the trouble — even if the benefits are five to 10 years away.

"The equipment is becoming more durable, the technology more reliable, the tags are improving, and at the same time, we're more knowledgeable about the relationship between the technology and the packages we sell to our retail customers," says Obrock, whose company is testing RFID with Wal-Mart Stores Inc.

Obrock is clear that reliability will play a major role in determining Henkel's eventual return on investment, which will be achieved in part by obtaining more accurate and timely inventory data from retailers. But valuable data can be collected only when the volume of Henkel's RFID-tagged packages increases. "It may take five or six years, but eventually it will grow into the fabric of our organization, like UPC bar codes," Obrock says.

Obrock and other experienced users advise companies to learn as much as they can about the relationship between RFID and their own products and processes and then build a system that anticipates and resolves reliability problems that arise.

DOA tags are common enough that experienced users have found ways to work around them. They arrange with tag manufacturers, for instance, to ship extra tags to compensate for those that don't work. Many printers today also include a readability tester that rejects bum tags, minimizing the chances that one will ever be applied to a container.

Of course, that doesn't resolve the issue of tags that test fine but fail later. That's why users that require the highest reliability guarantees must work directly with tag manufacturers on quality assurance — and pay a premium to certify that the tags will work.

This extra cost is acceptable to Atul Salgaonkar, founder of Cupertino, Calif.-based RFID Solutions LLC, which develops RFID systems for clients in the pharmaceutical and health care industries, where accuracy is paramount. "If I have 10 samples and only eight are read, I don't want to have to do a song and dance in front of my client," he says.

Salgaonkar proposes that manufacturers sell different flavors of tags with prices reflecting variances in reliability. The first step down that path would be for the tag vendors to publicize bit-failure-over-time rates, which they currently don't do. In the meantime, Salgaonkar advises clients to attach not one but two tags to pallets — which is fine for his clients,

whose high-end products warrant the extra cost.

Some observers see tag reliability becoming less of a factor as bigger-name companies such as Texas Instruments Inc. and Hitachi Data Systems Corp. enter the business. "There's a good chance the reliable-tag issue will be resolved by the end of the second quarter next year," predicts Steve Banker, service director of supply chain management at ARC Advisory Group Inc. in Dedham, Mass.

For their part, retailers seem willing to accept some level of inaccuracy. "We're receiving rules that say, 'If every week you send me a pallet with 80 cases, and this week I only read 79, I will understand it as 100%,' " Obrock says. Indeed, Banker expresses doubt that the technology will ever reach 100% accuracy at the pallet level, where tightly packed goods and other causes of interference can lead to readability problems. Retailers "will have to make a leap of faith that if they can read 19 out of 20 SKUs on the pallet, that the 20th one is there," he says.

Package Problems

What will continue to suck up lots of R&D dollars, however, is studying the nature of the products being tagged. "In the dry-goods space, people are getting close to 100% reads, some at a rate of 600 feet per minute," says Eric Peters, CEO of True Demand Software, an RFID start-up in Menlo Park, Calif. But with metal containers and anything containing liquids, read rates are a much lower 60% to 75%, or even 15% on some metal containers, he says.

Companies need to get creative to overcome these problems. When the Department of Defense had trouble tagging 55-gallon metal drums, Peters says, it finally succeeded by placing weatherstripping behind the tags, which minimized interference.

With Henkel's metal tape products, tags have to be placed in a very specific position on the box, or readers will pick up reflections from the tape. Meanwhile, a completely different type of tag works better with the company's shelf-liner products. That's where the cost really comes in: Companies are spending research dollars trying different tags and tag placements with all of their products — and they're documenting the results and making sure workers abide by the explicit instructions. They might end up requiring a variety of tags, with different form factors or different antennas, to accommodate all of the variables in their product lines.

"If you have 10 different SKUs and 10 different tags that you're trying to test, without fail there won't be one tag type suitable for all 10," says Brian Higgins, director of global RFID solutions at BearingPoint Inc. in McLean, Va.

That, of course, increases costs. "You can't get volume discounts if you're spreading out tag procurement purchasing power over 10 different tag types," Higgins says. And in addition to increasing costs, using different tags disrupts and adds complexity to your operations. Custom tags are also more expensive than the 30-cent variety, Romanow points out. "Whatever business case you have really goes negative when you start getting into custom tags," she says.

The challenge is to find the lowest common denominator, or the tag that works best on the widest swath of SKUs. For all these reasons, Higgins says, there's a gap between working through readability concerns and true deployment.

All in all, users have to walk carefully on the cost/performance balance beam when they engage in all this experimentation. "There are ways to enhance reliability, certainly. But the challenge is keeping it on a cost/performance curve so it's useful," Higgins says.

What Happens Next

So, you've worked through all the experimentation, and you've gotten an RFID pilot up and running. Don't celebrate yet — there's room for more trouble down the road. "Pilots are neat, where you get 100% read rates and give each other high-fives," says Trenstar's Adams. "But when you turn on the conveyor belt, and you're reading 1,800 containers an hour, it's a whole different ballgame."

Adams knows what he's talking about — TrenStar, a mobile asset management firm, tracks tens of thousands of RFID-tagged containers. The company is so comfortable with the reliability rate of its RFID system that it builds a key performance metric into customer contracts, promising 98% to 99% read rates. But the only way it can do this is by building intelligence into its network to pick up deviations and degradations quickly enough that someone can respond to them.

"Reliability is so much about the quality assurance process you have in place so that when things start to not work, you can pick up on that before it turns into a train wreck," Adams says.

TrenStar's RFID system includes a series of checkpoints that containers move through, each of which signals whether the container was read accurately. If a checkpoint is missed, the system alerts someone who can physically investigate whether the problem was a one-time anomaly or something systemic like a cut cable or burned-out battery. "We've put in business logic that says, 'If this occurs, take this action or e-mail this person, and if it happens 100 times, escalate the problem,' " Adams says.

Warehouse to Worker

Following the RFID reliability trail of tears eventually leads to the most important point of all: ensuring the integrity of the data collected by this technology. Few companies have progressed to the point of integrating the RFID data into their warehouse and ERP systems, so it's too soon to tell whether the data will be accurate.

But companies like Henkel are preparing for the problems that will arise. "If I ship a pallet with 80 cases, and the number that gets read is 76, and if every pallet is read that way, what do I do with that data?" Obrock says. You can round up to 80, assuming a misread, but what if a large number of pallets were truly four containers short?

The fact is, all the assumptions that you build into your business rules need to be reviewed before using this new data — and they need to continue to be reviewed as the technology improves. "You can't tell your data folks to assume data is off by 10%, and eight months later, it's actually only off by 3%," says Obrock. "You have to go back every so often to validate the difference between the real situation and modify the conventions around how they use that data."

While reliability and readability may not top the list of factors that will affect RFID adoption, they will, in the end, affect how meaningful the resulting data will be. One reason is that a large volume of data is needed in order for it to be useful.

"In a lot of these pilots, people are tagging 5%, 10%, 20% of their overall SKUs," Higgins says. "It's difficult to do any planning when you're only capturing that small of a fraction."

Still, experienced users are enthusiastic about the advances being made in RFID reliability, and they point out that the more users experiment and learn — particularly in these early days when implementers are most likely to be open about their experiences — the better off they'll be.

"Those who started three years ago will stay three years ahead. Others will catch up, but they'll be learning it on their own dime," Obrock says. "Once some of the retailers and manufacturers get good at it, I probably won't share all my insights because it will be hard-core knowledge." **50759**

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Squishy Returns

ARC Advisory Group recently conducted a survey of 24 manufacturers and distributors engaged in RFID implementations. Here are some findings from the study:

- **Twenty-three of the respondents said they didn't believe they would achieve ROI within two years.**
- **Respondents said that, through experimentation, they were able to achieve 100% accurate reads at the individual case level. However, at the pallet level, "experience was all over the map,"** says Steve Banker, service director of supply chain management at ARC. Some respondents with hard-to-read materials were achieving just 50% accuracy, while users with large items and pallets with no interior cases fared better. "Most folks were able to read every case on a pallet only 70% of the time," Banker says. Respondents said they'd need 95% to 99% accuracy at the pallet level to see benefits of RFID such as reduced inventory levels.
- **Respondents attempting to automate tag application found that printer/encoders couldn't keep up with their conveyor belts.** Successful alternatives, such as robotic applicators, were difficult to find. "Hardware suppliers think they're two generations away from resolving the speed issue," Banker says.
- **Automated tag application is also complicated by nonfunctioning tags.** Many printers reject bum tags and generate voided-out ones, but if there are two of these in a row, it disrupts automated operations.
- **None of the respondents said they were willing to make a high-volume tag purchase commitment.** "They're waiting for Gen 2 standards to be approved, and there's a new raft of hardware providers," Banker says. "The wait is partially in hope that they can negotiate a better price, but it's more about quality and reliability."

– Mary Brandel

THE Long AND Winding Road

How RFID data makes its way from manufacturing floor to retail supply chain at pioneering Gillette.

By Carol Sliwa

ON A ROAD MAP, the data encoded in an RFID tag will endure a long but clear-cut journey, traveling thousands of miles from a manufacturer's warehouse to a retailer's distribution center in a chip no bigger than the head of a pin. But the data's path gets more complicated as it wends its way through the various middleware and back-office applications that will ultimately make it useful in the retail supply chain.

Standards are still being worked out, and the software is still evolving. By the time everything is settled, the ways in which the data travels may change. That's what *Computerworld* learned as it traced the path of RFID data at trailblazing user The Gillette Co., one of Wal-Mart Stores Inc.'s top suppliers.

The Boston-based manufacturer has one of the most sophisticated global IT architecture designs among the 100 suppliers facing Wal-Mart's January deadline. Leo Burstein, distributed technology architect at Gillette, is confident that the bumps will be smoothed out. Burstein sits on the architecture review committee of EPCglobal Inc., the standards body working to resolve some of the prickliest issues.

In the meantime, with so much in development, Gillette has faced a balancing act to establish "a framework that is flexible enough to sustain the long-term project but at the same time develop some tactical benefits that can be used to support our customers in the short term," Burstein says.

At Gillette, the data begins its journey in the software systems that assign a unique Electronic Product Code to each case and pallet. The EPC is transfused onto a chip embedded in a tag that has a flat, razor-thin coil on its underside. When the tag hits the RF field of a reader, it responds with a signal containing its code, and the data is sent to EPC middleware for processing.

Once Wal-Mart expands its RFID efforts and other retailers follow suit, data will be gushing through those companies' IT systems like a waterfall. But the volume of data is currently more akin to the trickle of a stream.

Thus far, only a handful of retailers have asked their suppliers to ship cases and pallets with RFID tags to selected distribution centers, so technology vendors aren't able to get the critical mass necessary to drive down costs.

Because RFID tags and related systems are expensive and the near-term payoff isn't clear, there's little point in tagging all products at the point they're manufactured. Retailers merely need to know when the cases and pallets are shipped and what's in them. As a result, most suppliers tag goods as late in the process as possible.

Gillette is no exception. The company was one of eight suppliers to participate in a pilot with Wal-Mart. Most of the cases of razors, shaving cream and toothpaste it ships to Wal-Mart are tagged at its distribution center in Romeoville, Ill. But because Gillette thinks the benefits will be greater the earlier in the process it can tag goods, the company has also launched a pilot to "tag at source" at its packaging facility in Fort Devens, Mass., where it puts EPC tags on cases of Venus razors.

> **Our analysis shows that 90% of our benefits and 90% of the retailer's benefits come in the collaboration process.**
>
> JAMSHED DUBASH, DIRECTOR OF AUTO-ID TECHNOLOGY, GILLETTE

Like a license plate on a car, the EPC uniquely identifies a case or pallet. It uses five key pieces of information: the company code; product code; serial number that uniquely identifies the item; a header that defines different types of tags, such as those in the consumer products industry; and a filter value that allows a company to read only pallet-level tags, ignoring case-level tags or vice versa.

By tagging at the point of packaging, Gillette can reduce the labor costs associated with manually scanning each case and curb errors. Workers currently key five entries onto a keyboard and do three bar code scans for each pallet, according to Jamshed Dubash, director of Auto-ID technology at Gillette. He says a business process analysis showed that the company will annually save 25% in operational costs once all cases are being tagged at the packaging point rather than at the distribution center.

But, Dubash is quick to add, "even though you can get significant benefits from operational savings, it's the collaborative benefits that are the real drivers and motivators for us to work so closely with our retail partners. Our analysis shows that 90% of our benefits and 90% of the retailer's benefits come in the collaboration process."

Moving Through the System

Gillette's EPC data travels thousands of miles on a tiny chip to Wal-Mart's Texas distribution centers in Sanger and DeSoto, as well as to some stores, Burstein says. If all goes well, its arrival is automatically logged when the tags on the cases and pallets are read at strategic positions in the retailer's distribution centers and stores.

Gillette is already getting access to data from Wal-Mart and is working with the retailer to understand the optimal use of the data, Burstein says.

A spokesman for Wal-Mart says it provides options for suppliers through its Retail Link extranet site. With Retail Link, suppliers have to "pull" data; a dashboard provides customization options. That system was used during the pilot, and many suppliers will continue using it, the spokesman says. He adds that Wal-Mart has rolled out specifications for an Electronic Data Interchange document that will allow suppliers to receive "all of their read data" on a machine-to-machine basis in that form — daily, if they wish.

Gartner Inc. analyst Jeff Woods says suppliers will be able to see data indicating not only when a product arrives at Wal-Mart's distribution centers and stores, but also when it moves from a store's back room to the sales floor, because readers in trash compactors will note when cases are crushed.

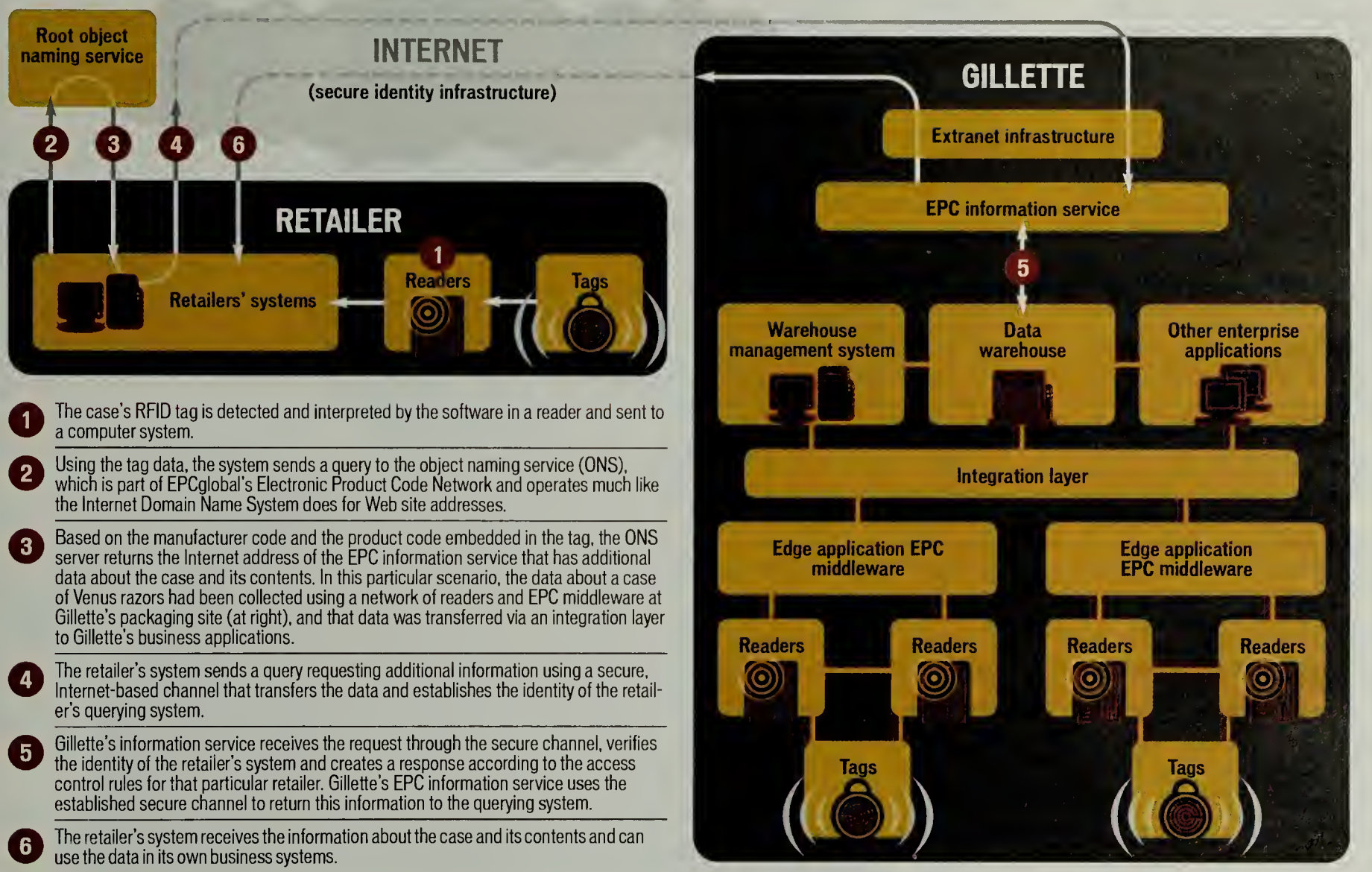
The challenge for suppliers will be getting structured access to the data, because that's the most efficient way for them to get payback from RFID, according to Woods. "Capturing the data from Wal-Mart is not as efficient a process as most people believe. Many suppliers use somewhat manual processes to accomplish this," Woods says, noting that their replenishment planning, forecasting and category management systems will need the data.

But, Woods maintains, even if suppliers can get the RFID data, the majority won't know what to do with it. "Most aren't even ready to use the point-of-sale data that's there today," he says.

When Gillette began designing its

What's in that case?

SCENARIO: An RFID-tagged case with no label has been found in a retailer's distribution center. Here's how the retailer might find the data associated with that case in the future.



1. The case's RFID tag is detected and interpreted by the software in a reader and sent to a computer system.
2. Using the tag data, the system sends a query to the object naming service (ONS), which is part of EPCglobal's Electronic Product Code Network and operates much like the Internet Domain Name System does for Web site addresses.
3. Based on the manufacturer code and the product code embedded in the tag, the ONS server returns the Internet address of the EPC information service that has additional data about the case and its contents. In this particular scenario, the data about a case of Venus razors had been collected using a network of readers and EPC middleware at Gillette's packaging site (at right), and that data was transferred via an integration layer to Gillette's business applications.
4. The retailer's system sends a query requesting additional information using a secure, Internet-based channel that transfers the data and establishes the identity of the retailer's querying system.
5. Gillette's information service receives the request through the secure channel, verifies the identity of the retailer's system and creates a response according to the access control rules for that particular retailer. Gillette's EPC information service uses the established secure channel to return this information to the querying system.
6. The retailer's system receives the information about the case and its contents and can use the data in its own business systems.

architecture, the starting points were the business requirements and back-office applications. From there, it worked its way back through an integration layer, the EPC-enabled middleware and finally to the readers and the tags containing the data. The idea was to minimize changes to existing business applications, protect the company from shifts in RFID technology and create layers of abstraction, connected by a series of sophisticated interfaces.

Taking a service-oriented approach, each application would be similar to a Lego block, and the interfaces would be the pegs connecting them. Any one of the building blocks could be removed, and another could be plugged in. "You can use the best building blocks that meet your requirements, and if you need to replace one of them, you do not have to change the rest of the puzzle," says Burstein.

The current edition of Gillette's architecture has a business application layer consisting of its data warehouse, a warehouse management system from Provia Software Inc. and other applications that will process the data.

Integration and Middleware

An integration layer sits between the enterprise application layer and its EPC-enabled middleware from OatSystems Inc. The integration layer, based on technology from Sun Microsystems Inc., handles the routing of data between the middleware and enterprise systems, guarantees message delivery and performs any needed protocol or data-format transformations.

The OatSystems middleware collects the EPC data from the readers, each of which has read a tag potentially hundreds of times per second, and filters the data into separate messages that have a distinguishable meaning from the business process perspective.

Gillette is also testing an appliance concept that will combine the reader, some functions of the middleware and the physical infrastructure to simplify its systems, Burstein says.

At the same time, Gillette is working hard through EPCglobal to standardize interfaces, the most important being those between the middleware and enterprise applications, Burstein says. The only needed interface close to being finalized is the one between tags and readers, he adds. "It's easier said than done," Burstein acknowledges.

"We as end users are encouraging technology providers to keep their systems open so we don't create stovepipes with no ability to exchange information between them," Burstein says.

But Woods says one of the greatest hurdles to overcome is how to determine the context of the data that's being collected. For instance, a reader at a shipping dock door needs to discern which tagged pallets are heading onto trucks and which are merely passing by on their way to storage, he says.

Scores of suppliers will merely slap tags onto the cases and pallets they ship to Wal-Mart and not worry about adapting their systems and business processes to take advantage of the data, at least in the near term. Even Gillette, which has what Woods terms a "sophisticated, very sleek architecture," still has a long way to go in figuring out meaningful uses for the data.

But, Woods adds, "if any supplier can figure out a way to use the data, it will be Gillette." **51069**

Just getting your feet wet with RFID? These early users offer advice for managing a pilot project.

By Marc L. Songini

RAY NG

RFID PILOT TIPS

EARLY ADOPTERS say the trick to navigating the relatively untested waters of radio frequency identification is to assemble a savvy team that can set the project scope, win over business users and make up for the technology's limitations.

Take, for example, the El Paso County government office in Colorado Springs. A six-week RFID pilot project launched this fall to track IT assets involved tagging 265 PCs, 10 printers and 10 tablet PCs. The first step in the project, which would eventually pour retrieved RFID data into PeopleSoft Inc.'s Asset Manager, was to create a business case.

Buffy Dorpinghaus, manager of the Colorado county's PeopleSoft group, met with CIO Bill Miller and desktop and network managers. To sell them

BUFFY DORPINGHAUS persuaded El Paso County's CIO to give RFID a shot. "I had to give them a caveat and said, 'Let's just try it, and if it's not working out, then great, no harm done,' " she says.

on the project, Dorpinghaus explained that the new system would use existing bar-code scripts to cut the time needed to track PCs from 10 minutes to one minute without adding hardware or software or requiring a staff member to visit each desktop.

"I had to give them a caveat and said, 'Let's just try it, and if it's not working out, then great, no harm done,' " she says. The pilot would also be cheap, at under $100,000, Dorpinghaus says. That one-time pilot expense, which also paid for the production license, was a big plus. Had the project been bigger, she says, there probably would have been resistance.

Miller says that although RFID is a relatively new technology for government agencies, the pilot was seen as an opportunity to streamline processes and verify that new software and hardware would work the way El Paso County needed them to.

Next, the nine-person project team was put together. Dorpinghaus was chosen to head the team because of her PeopleSoft applications expertise and ability to map the technology to business processes. Also on board was a non-IT manager, who handled project administration, meeting planning and status reporting, and three IT staffers who would eventually use the system, including one person assigned to transfer the scripts used with the bar codes so they would work with the RFID technology as well.

Jamie Hintlian, a consultant at Accenture Ltd., says this upfront work of building the RFID team with the right skills and creating a solid business case is key. "Make sure the pilot is focused on a common set of objectives and imperatives," he advises. By managing the scope, companies can more easily manage the infrastructure and technology, Hintlian says.

For its RFID pilot, Madison, Wis.-based bicycle manufacturer Pacific Cycle Inc. created a four-person team: two IT workers with RFID technical skills and two business users who would be using the system once it was up and running, says CIO Ed Matthews. The pilot involved tagging 3,500 bikes and the packaging material inside and outside the boxes they're shipped in.

Since the pilot went live in September, the manufacturer has shipped 15,000 tagged bikes to Wal-Mart Stores Inc. But because RFID technology has been changing so fast, Matthews says that in retrospect, he would have waited another year. "In terms of technology, the immaturity has and continues to be a nuisance," he says. "We tried several tags and antenna designs but didn't get the results we wanted. I can't tell you the number of times that we were told a product is just a couple of weeks or a month away only to find out that it is still coming."

Winning Over Stakeholders

Another critical part of managing an RFID project is gaining business users' trust. The El Paso team held regular meetings with end users in the help desk and networking departments as well as those in the purchasing and supply group to create a clear, standardized process. The team used Microsoft Corp.'s Visio software to map the workflows.

Creating a structured workflow plan is time well spent, says Hintlian. "The results will be more significant, and the expectations for the pilot will be agreed upon from the start," he says.

Dorpinghaus says the idea was to fully train the workers who would be using the RFID system and ensure that they would benefit from it. Because the end users in this case were IT workers and savvy about the technology, they proved especially demanding, requesting special interfaces to access relevant data, she says.

But the RFID team learned early on that that kind of continued user feedback can only improve the system. "Keep encouraging them to be open," advises Dorpinghaus. Most problems can be easily resolved, and quick fixes can nip any growing dissatisfaction with the system, she says.

"Make sure you have good resource commitments from the pilot participants," adds Hintlian. "Each participant must be able to dedicate enough time to plan and execute well."

In addition, "working together face-to-face is important for the success of these pilots," he says.

Learning Along the Way

Even though RFID technology has been around for some time, launching a successful pilot requires trial and error, says Sean Clark, director of RFID at DC Logistics, a Dallas-based third-party logistics services provider. His company is launching an RFID pilot project in January for one of its customers, with other tests planned for clients that need to satisfy the requirements of the U.S. Department of Defense and retailers like Wal-Mart.

For example, DC Logistics learned to place a plastic tag under the RFID tag if the container is made of metal so that the signal is read accurately.

GOLDEN RULES

MANAGE PROJECT SCOPE. If the pilot is focused on a common set of objectives, the infrastructure and technology will be easier to manage.

CREATE A WORK PLAN. A well-structured plan will deliver better results and help meet user expectations.

GET STAKEHOLDER BUY-IN. Each pilot participant must be able to dedicate adequate time to plan and execute on the project.

GET THE TEAM TOGETHER. RFID project teams should work on-site together, preferably face to face.

SOURCE: JAMIE HINTLIAN, CONSULTANT, ACCENTURE

> **"[RFID technology] will be a no-brainer in a couple of years. But for now, they don't call it the bleeding edge for nothing."**
>
> **ED MATTHEWS,** CIO, PACIFIC CYCLE

At Pacific Cycle, several dry runs uncovered the best places on the bicycles to place the tags and whether the tags could be successfully stored and retrieved, says Matthews.

An important skill for RFID team members is the ability to improvise, he says. "If you looked at our warehouse and the antenna setup around the portals, you would think it was a mad scientist gone bad," says Matthews. "To get better read rates and to protect the antennas from being hit from a forklift, we have tried everything except attaching an old TV tray."

In fact, Matthews says bicycle welders were called on by the project team to manufacture mounts to attach RFID equipment to dock doors.

"I do believe that all of this will be a no-brainer in a couple of years," says Matthews. "But for now, they don't call it the bleeding edge for nothing."

That ability to roll with the punches is an important attribute in team leaders as well as team members. "Of course there were mistakes," acknowledges El Paso's Dorpinghaus. For instance, she says she forgot to change the license for the RFID system from development to production when the pilot went live, a problem that was quickly resolved.

She also soon discovered that there aren't a wide variety of readers or tags to choose from. The county had hoped to get more "active" tags — tags with ranges exceeding 8 feet — but eventually had to settle on passive tags with shorter ranges. "Be patient, be positive," advises Dorpinghaus.

"Just because it doesn't work the first time, try again," adds Clark. Some tweaking might get the system up and running in the pilot. "You need to tinker at this stage," he says. **50976**

FUN WITH RFID

Don't look at your RFID project as a death march, despite the technology's problems. Make it an adventure, says columnist Frank Hayes:

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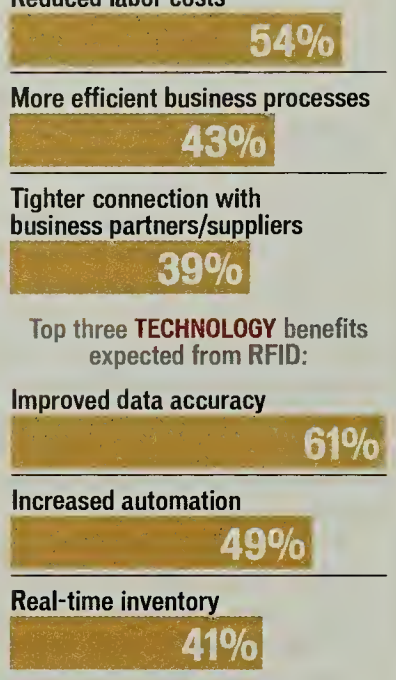
SNAPSHOTS

RFID Benefits

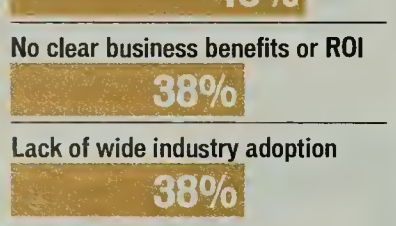
Top three **BUSINESS** benefits expected from RFID:



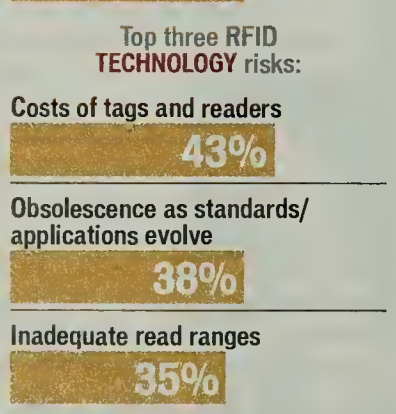
Top three **TECHNOLOGY** benefits expected from RFID:

RFID Risks

Top three RFID **BUSINESS** risks:



Top three RFID **TECHNOLOGY** risks:



Base: Survey of 351 senior IT executives, directors and managers. Multiple responses allowed.

SOURCE: BEARINGPOINT INC., IRVING, TEXAS, OFFICE, APRIL 2004

MARK HALL

Forget Wal-Mart

When Wal-Mart's much-watched, ambitious RFID pilot project kicks off next month in Dallas metro-area stores, don't be surprised when it fails. Save your shock for the slim possibility that it will succeed.

I say this because Wal-Mart's stated goal for its pilot is "100% readability of pallet tags through dock doors and 100% readability of case tags on distribution center conveyor belts."

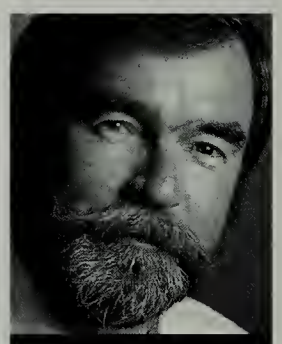
Not a chance.

The passive Class 1 RFID tags and the readers that use radio frequency signals to get information from the labels aren't capable of achieving 100% success in noisy warehouses loaded with signal-distorting metal objects. And the relatively weak signals from the Class 1 readers will have loads of trouble figuring out what cases of, say, Clairol shampoo or Palmolive dish soap contain, since those signals don't propagate well through liquid.

I'm not the only RFID doom-and-gloomster. Gartner issued a report earlier this year warning its subscribers to "prepare for disillusionment with RFID." Analyst Jeff Woods concluded that, for the moment, "radio frequency identification cannot live up to the promises that have been made for the technology."

But you already know how disappointing RFID has been. A mere 8% of 50 companies polled by ABI Research claimed to be very or somewhat satisfied with their RFID programs. Nearly 20% said they were somewhat or completely dissatisfied.

Nonetheless, half of 30 manufacturers surveyed by Accenture said that they "expect high returns on RFID investments." You know they're in for a rude awakening.



MARK HALL is a *Computerworld* editor at large. Contact him at **mark_hall@computerworld.com.**

You'd think the big problems dissatisfied users face would be in back-end integration. Not so. It's the performance of the tags and readers that irk them. That and their cost.

So, while I'm grateful that Wal-Mart has an RFID FAQ page on its Web site, it will be a long, long time before we need to know that people can either keep or discard the harmless RFID tags they find on goods purchased at a Sam's Club or Wal-Mart Supercenter.

Despite the hoopla and the apparent need, RFID's best chance for success won't be in retail. I'm betting it will be in manufacturing, particularly among makers of big-ticket items. That's because the RFID labels and readers to be used there will be either Class 3 or 4 technology. Those RFID tags include a battery with an estimated three- to five-year life span and readers that use a strong enough signal to work well in a real-world warehouse and everyday manufacturing floor. They'll even figure out what's inside a case of shampoo or a pallet with kegs of beer.

One company working toward that goal is Intelliflex in San Jose. Intelliflex hasn't announced its existence to the world yet. Its venture capital backers consider it to be in "stealth mode," with its products still in early beta. But Ashish Asthana, vice president of marketing and product strategy, took a moment to discuss the advantages of his firm's technology.

With an integrated battery on an RFID tag, he says, you get to add memory to the label. With memory, he suggests, application writers can expand beyond the simpler expectations retailers have about using RFID to improve inventory control.

"In manufacturing, you can do things with configuration control throughout your supply chain," says Asthana. You can even make an RFID tag do things like report the temperature of an item, he adds.

David Ezequelle, venture partner at Alloy Ventures, which is one of Intelliflex's investors, adds that in the future, battery- and memory-assisted RFID tags and readers might be used not just to identify an object's contents, but to locate it, too. For example, he says, a hospital could tag its costly instruments and use a triangulation of readers to find them when they go missing, as happens so often in busy, sprawling hospitals where everyone is sharing pricey gear.

Sure, Class 3 and 4 RFID products are much more expensive; tags are $25 to $30 versus 50 cents or so for the Class 1 labels that Wal-Mart's partners are applying today. But the objects tagged with these expensive labels have a far, far greater value than consumer products found on a retailer's shelves.

So I say, let's forget Wal-Mart for a while. We can wish the retailer and its suppliers well in their efforts to solve a tough problem at the lowest possible cost. But I doubt that many companies will be able to apply many lessons from their experiences, at least for a while.

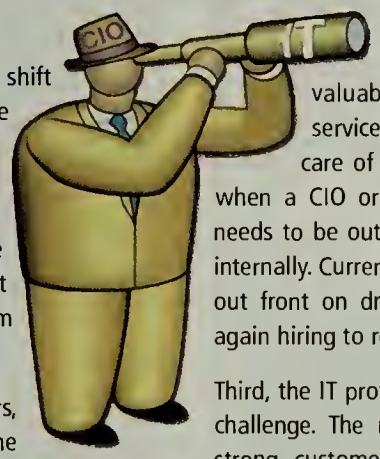
What we need are examples from, say, automakers that can use Class 3 and 4 tags to alert inventory systems that the expensive products from their Tier 1 suppliers are waiting to be offloaded from trucks; or from the transportation industry, where railcar owners can keep track of rolling stock and their contents and schedules. The best RFID work will be done at the high end.

"It's all about ROI," Ezequelle says. "No one's going to invest in it without money coming out the other end." **51257**

Advertising Supplement

IT Careers: CIOs Identify Trends for 2005

Normally workforce experts look to the CIOs of the largest IT firms to establish what the future will bring. However, the trends facing non-IT CIOs – who represent better than 79 % of the jobs, according to ITAA's annual workforce study – are the ones that will affect the vast majority of IT professionals. And their list of trends to watch in 2005 is short.



First, industry sectors will continue to shift focus on information technology as core business competencies. Steve Agnoli, CIO for Kirkpatrick Lockhart LLP law firm in Pittsburgh, says, "IT competence is key in our ability to provide client service. The large firms and corporations we represent expect us to be able to hang with them from a technical standpoint."

That situation faces all business sectors, according to Ray Barnard, CIO for the world's largest engineering construction firm, Fluor Corp. "We're projects-based with projects in 48 different countries. Each project has an IT element to it." For the World Wildlife Foundation, based in Washington DC, the need is the same. WWF's CIO, Greg Smith, says advancing and evolving use of technologies is required to maintain the non-profit's mission and goals.

Second, the cost of IT services will continue to be the name of the game for all industry sectors. The result, according to all three CIOs, will be continued levels of outsourcing for commodity functions. Barnard, who recently outsourced better than 35% of his IT operation, says the challenge is to identify *accurately* what IT capabilities are core to the business or organization and to the smooth transition of employees to outsource service providers. "I think we'll see a shift of some jobs to service providers," says Barnard, pointing to increased opportunity for IT professionals with the valuable commodity skills. "Right now, the service providers have multiple clients to take care of and need people." The risk, of course, is when a CIO or IT team doesn't correctly identify what needs to be outsourced and what needs to be preserved internally. Currently the financial services sector, which was out front on driving down cost through outsourcing, is again hiring to regain its core technical capabilities.

Third, the IT profession continues to offer opportunity and challenge. The most critical skills IT pros need include strong customer service understanding, communication skills and management of outsourced capabilities. For Fluor Corp., the need is for staff members who, understanding the business of engineering, can develop and upgrade infrastructure architecture; programming in support of CAD, three-dimensional CAD and CATIA; programming in support of the ERP systems, particularly financial; and development of security protocols and programming. Mobility is another critical factor in Barnard's world, where systems must be developed and put in place on a worldwide basis. For Agnoli in a legal setting, customer focus "must be at an unbelievable level", and he looks for those who can communicate about and apply technology to the benefit of the firm. And for Greg Smith at WWF, the critical skills for non-profit IT professionals are for-profit thinking and practices to achieve extraordinary results. He lists analytics and business intelligence specialization as critical.

"The market is blurred," adds Smith, in terms of where the greatest opportunities exist – government, for-profit or non-profit. "I'd challenge them (IT professionals) to look for sound opportunities for organizations that have a great brand and name recognition."

The Job Market

Legal. The 10 largest American law firms spend 3-5% of revenues on IT and have IT staffs of more than 70.

Construction. The 10 top world engineering construction firms have IT staffs of approximately 500 to 750 each, according to Barnard.

Non-profit. World Wildlife Foundation has a staff of approximately 20 IT professionals, fairly representative of sophisticated non-profit operations.

For more information about IT Careers advertising, please call: 800.762.2977

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Must have a Master Degree or foreign degree equivalent in Information Systems, Computer Science, or related field AND 1 year of experience in the job offered or 1 year of experience in a position involving application development OR will accept a Bachelor Degree or foreign degree equivalent in Information Systems, Computer Science, or related field AND 3 years of experience in the job offered or 3 years of experience in a position involving application development. Experience mentioned may have been gained concurrently and must include: (i) 1 yr of experience in developing user interface applications; (ii) 1 yr of experience in report development in a client server environment utilizing reusable code modules in an application development lifecycle; (iii) 1 yr of experience in applying design and analysis of relational theory in a complex database environment using SQL over multiple hardware platforms; and (iv) 1 yr of experience in business requirements elicitation and documentation of information systems in regulated environment. Must have legal authority to work in U.S. Send resume to S. Hopson (REF:CAE), Medtronic Sofamor Danek USA, Inc., 1800 Pyramid Place, Memphis, TN 38132.

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Sr. Scientist (Speech Recognition Project): Duties: Perform advanced speech recognition research leading to dsgn & dvlpmt of a real-time speech recognition systm to operate on conversational telephone speech & broadcast news in English, Arabic & Chinese; compile & assemble speech signal data using std techniques, incl linear discriminant analysis (LDA), heteroscedastic LDA (HLDA), perceptual linear prediction (PLP) analysis, & MFCC co-efficients; conduct acoustic modeling using hidden Markov models (HMM), trajectory models, speaker adaptive training (SAT), minimum mutual information (MMI) & minimum phone error (MPE); use C, C++ & Perl prgmg languages to integrate new technologies into existing speech recognition systm & debug; Req: Masters (or foreign equiv.) in Electrical/Comp Engg, w/sustained research interest, as evidenced by graduate thesis or record of publication, in the field of speech recognition; + 2 yrs exp. in the dsgn & dvlpmt of speech recognition systms. Exp. must incl 2 yrs with: PLP, MFCC & H/LDA analysis; HHM, trajectory model, SAT, MMI & MPE acoustic modeling technologies; & C/C++ & Perl. Job #SS1

System Design Engineer: Duties: Perform theoretical analysis & validation of linear, non-linear & stochastic systems; using C/C++ & MATLAB/Simulink, Maple, Mathcad & Labview tools; perform statistical analysis of experimental data; dsgn, simulate, validate & implmt real-time control algorithms using knowl of A/D/A converters, Digital Input/Output (DIO) computer interfacing, digital/analog circuit design & computer architecture; dsgn &/or simulate & implmt digital link layer of networking protocols & real-time digital signal processing algorithms, systems level digital /analog interfaces & prototypes of high-speed h/ware electronics using VHDL & FPGA synthesis tools. Reqs: Bach (or foreign equiv.) in Comp. Eng /CS + 2 yrs. exp. as Systems Analyst/Design Engr. Exp. must incl: 2 yrs. of control systm dsgn exp. with MATLAB/Simulink, Maple, Mathcad & Labview tools, & C/C++ prgmg; also, at least 1 yr of exp. in digital dsgn using VHDL/FPGA synthesis tools & 1 yr of hands-on exp using h/ware components such as A/D/A converters, amplifiers, DIO computer interfacing, & digital/analog circuit dsgn. Job #SDE2

Software Engineer: Duties: Work w/team to dsgn, implmt, & test prototype modules or subsystems for ad hoc mobile packet radio networks on selected platforms, using C/C++ and Java; simulate & analyze efficacy of new architectures, algorithms, & protocols within future projected traffic & service reqmt scenarios, using Opnet/ns & MATLAB; perform code dvlpmt & debugging tasks using GCC & MS Visual Studio. Req: Bach (or foreign equiv.) in Comp Engg or Comp Sci. Also reqs advanced course work/college project exp. with: operating system architecture & driver dvlpmt using C/C++, GCC & Visual Studio; simulation exp. w/MATLAB & Opnet/ns; & familianty w/data communication & radio concepts (signal processing, radio control engg) as they apply to mobile & other wireless technologies. Job #SE3.

Send resume & ltr of application, identifying position by Job# & detailing relevant exp, to Robin Hughes, HR Bus. Partner, BBN Technologies, 10 Moulton St., Cambridge, MA 02138.

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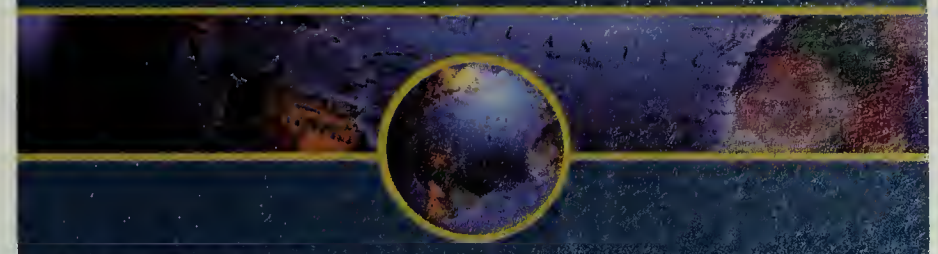

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Information Systems Manager (West Caldwell, NJ location): Bachelor's Degree. Knowledge in C++, Java, Scheme, Q-basic, Macromedia, Dreamweaver and Flash. 2 yrs. exp req. 40 hrs/wk 9AM-5PM. Bilingual: Korean/English. Fax resume to 973-618-2478.

Software Engineer sought by consulting services company in Denver, CO to work in Dublin, OH and other unanticipated job sites in the U.S. to, under close supervision engage in moderately complex tasks including engaging in full life-cycle software application development and enterprise wide integration of diverse software applications. Analyze requirements. Create designs and design documentation. Code, test, and de-bug the software applications. Use object oriented design techniques, CORBA, J2EE, J Builder, J Unit automated test tools and SQL in the development process. Work is closely monitored. Requires bachelor's or foreign equivalent in computer science or related field, including mechanical engineering; working knowledge of development of integration software applications utilizing object oriented design techniques, CORBA, J2EE, J Builder, J Unit automated test tools and SQL. (Working knowledge may be gained through employment experience or in an academic program. M-F; 8am-5pm; $59,750/yr. Respond by resume to Workforce Development Programs, PO Box 46547, Denver, CO 80202 and respond to JON CO5099634.

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B'Ham, AL. VOIP apps engineers to configure test & document VoIP protocols re interoperability b/t vendors & conform w/ITU0T & IETF stds. Environ includes SS7-net & PSTN arch; Cisco routers & Linux/Unix. Req: MSEE & exp on Cisco routers & Linux/Unix operating systems, VoIP, routing protocols, ATM techn. Resumes to: S. Wooten, Competent Staffing Resources, 3555 Koger Blvd, Ste 120, Duluth, GA 30096.

Eclaro International, an IT staffing provider (MBE certified), has numerous openings for IT professionals to fit different positions to design and develop customized applications. Applicants must have BS/MS with related IT experience. Please send resumes to kdacey@eclaroit.com. EOE. No calls.

Corporate Computer Services (CCS) has multiple openings for System/Programmer Analysts, S/W Engineers, both entry & experienced levels (minimum BS). Use skills C/C++, VB, Oracle, etc. We are small but we do not lay off. Attractive wage w/ benefits. Apply HR@ccsiusa.net. EOE.

Senior Test Engineer wanted in Glen Allen, VA office. Must have Master's deg. or equiv. in Engineering, Comp. Eng. or related field & 3 yrs. testing & integration exper. incl. at least 1 yr. exper. using IP-based Voice & Video Unified Messaging systems & VoIP signaling with SIP protocol as per RFC standards, Telecom & VoIP test tools for comformance & compliance testing, Directory & Messaging Servicers with UM architecture, testing of SS7, & exper. on Italtel iMSS SoftSwitch, Cisco BTS 10200 SoftSwitch, SIP proxy servers & Media Gateways & at least 6 mos. exper. with Veritas High Availability architecture using RAID cluster technology. (A Bach. Deg. in Eng., Comp. Eng., or related field & 5 yrs. progressive exper. will be accepted as equiv. to e Master's deg. & 3 yrs. exper.) Send cover letter & resume to Corporate Recruiting, Code VARM, LogicaCMG, 32 Hartwell Ave., Lexington, MA 02421. No third parties or phone calls please. LogicaCMG is an EEO, M/F/V Employer.

Software Engineer, under Supervision, will develop software engineering standards. Will design and develop commercial client/server applications using Oracle, Visual Basic, SQL, C, C++, Fortran, WATCOM, Power Builder and Unix. Bachelors or Associate Degree, with 3 years experience required. Competitive Salary, 40 hrs. a week. Send resume, HR Manager integrated Business Group, 20 Arcadia Drive, Suite 54, North Waterboro, ME 04061.

Uson LP, a Roper Industries company, seeks a Software Engineer at its Houston, Texas facility. Candidate will develop new features and sustain maintenance of Uson's "Vector" leak testers used in automotive and medical industries. Perform de-tailed software design, software implementation, testing, debugging, and documentation of GUI for real-time embedded systems for commercial and industrial leak tester based on Object Oriented Design. Requires a Bachelor's degree in Engineer-ing, Computer Science or related field plus 1 yr. experience as Software Developer or Comput-er Programmer. Must include experience in object oriented programming in C++ and Java; OOD programming design concepts; MS Access Databases; and RDBMS. Submit resume by email to: MRobison@Uson.com.

Several positions available. Requirements and salary vary per position. Send resume to: Srivatsan Ramachandran, A.M.I., 6145F Northbelt Parkway, Norcross, Georgia 30071.

Software Engineers needed. Seeking candidates w/ MS in Comp Sci, Engg, Math or related and rel work exp. Part of rel work exp must include 1 yrs working w/ XSLT, HTML, and Java. 2 years of experience in entire software development life cycle plus JavaScript and Weblogic preferred. Duties include: Design comp systems, analyze reqs and customize software. Must be willing to relocate. Mail resume & refs to: San Francisco Systems, Inc., PO Box 171, Rockland, ME 04841.

Programmer Analysts to analyze, develop, test wireless/web software systems using C, Java, XML/XSL, J2EE, JDBC, EJB, JSP, Servlets, HTML, ASP with Oracle, SQL Server databases on Windows, LINUX & UNIX OS; determine functional reqs, write functional design specs, evaluate tech. feasibility; develop reporting system for wireless appl on web servers/appl server; provide guidance for complex user problems and trouble shoot production issues. Require: BS or foreign equiv in CS/Comp Engineering and 2 yrs exp in IT or M.S. in CS/Comp Engineering. Competitive salary. Full Time. Respond with Job code A2W1204: HR, Air2Web, Inc., 1230 Peachtree Street NE, Promenade II, 12th Fl., Atlanta, GA30309.

Software Eng/Programmer wanted by National Computer Systems in NJ & ME. Requires BS in Comp Sci or related field w/ min 3 yrs working exp. Job duties incl: design, develop & implement intranet/internet & client server applications, including ERP; analyze, review & alter programs to optimize performance; develop programming stds for software to meet new requirements; direct & participate in various aspects of system life cycle; estab system stds for hardware, software, etc; write software development documentation; test the developed application for software QA; write test cases & system plans. Fax resume to 732-940-2276 (NJ) & 207-221-9999(ME).

Systems Engineer wanted by Energy Measuring Device Manuf. in Westbury, NY. Must have MS Degree in EE or Comp Sci. + Extensive Exp. Send res to: Electro Industries, Fax: 516-338-2637. Attn: Personnel

Programmer Analysts to analyze, design web appls using Java, VB, Java Script, VBScript, HTML, DHTML, ASP, PHP, Access, Oracle, SQL Server, Dreamweaver, Active X, IIS under Windows, UNIX OS; generate batch reports; conduct user req/feasibility studies & systems analysis; maintain, document, support, test and debug appls. Require: B.S. or foreign equiv in CS/Engg(any branch) with 2 yrs exp in web based appls. High Salary. F/T. Travel involved. Resume to: HR, Salem Associates, Inc., 405, 6th Ave., Ste102, Des Moines, IA 50309.

First Consulting Group is a leading provider of information based consulting, integration, and management services to healthcare, health plan, pharmaceutical and other life sciences organizations in North America and Europe. We are currently seeking a Technical Master III - Technical Integration. Perform healthcare integration consulting, analysis, design and development. Develop interfaces between applications using interface engines and programs. Require: Bachelor's degree or foreign degree equivalent in Computer Science, or a closely related field, plus 5 years of experience in the job offered or as an Analyst in the health care industry. Must have HIE Cloverleaf Interface Engine certificate. Paid travel on long or short term assignments to various unanticipated client sites within the U.S. is required. Send resume to: recruiter@fcg.com (preferred) or DP-Human Resources, First Consulting Group, Inc., 111 W Ocean Blvd, 4th Floor, Long Beach, CA 90802 (No Phone Calls Please).

SQL Server Database Administrator: Will be responsible for complete life cycle of the project using Visual Basic, ASP, PL/SQL, T-SQL, Pro*C, C, PHP, MS - SQL Server 2000, Oracle, Java Script, and VBScript, Erwin, Visual SourceSafe, PVCS, HTML, DHTML, CSS, XML, XSL, UNIX, DTS, SQL*Loader, SQL data compare DTS, etc. AND SAP Business Warehouse Developer: will be responsible for complete life cycle of projects using SAP R/3, Sap BW-3.SAP ABAP/4 in MM, PP, SD, FICO Oracle, Cognos, Business Objects, Informatica, SQL, PL-SQL, JavaScript, VBScript, Html, and XML, etc. Bachelors Degree, with 2 years experience required. Competitive Salary, 40 hrs. a week. Send resume, HR Manager, Integrated Business Group, 20 Arcadia Drive, Suite 54, North Waterboro, ME 04061.

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Database Admin: Experience working in MS Access, VB, SQL, Oracle, Crystal Reports.

Java Programmer Analyst: Exp in java technologies, QA Testing, Internet Wireless Devices, ASP, XML, Solaris Platform, Apache Webserver and JRUN.

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Seeking qualified applicants for the following positions in Orlendo, FL: Senior Programmer Analyst. Formulate/define functional requirements end documentation based on accepted user criterie. Requirements: Bachelor's degree or equivalent* in computar sclance, engineering, MIS or related field plus 5 years of axperience in systems/applications devalopmant. Experience with C++, Unix and transportation revenua processing systems elso required. *Master's degree in eppropriata field will offset 2 years of general experience. Submit rasumes to LaWanda Thompson, FedEx Corporata Servicas, 1900 Summit Tower Blvd., Suite 1400, Orlando, FL 32810. EOE M/F/D/V.

Paradigm Infotech is looking for programmar/system analysts, DBA, s/w engineers. Candidate must have BS/MS with experience. Good skills in C/C++, Java, Orecle, WebLogic, VB, HTML, ERP ara plus. Traveling raquired for soma jobs. Apply jobs@paradigminfotech.com. EOE. No cali.

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Programmer Analysts to analyze, design s/w appls using SAP R/3, ABAP/4, C, C++, Java, VB, JSP, JScript, HTML on UNIX/Windows os; gather/document reqs from user community; test/troubleshoot project appl code according to system objectives. Require a B.S. or foreign equiv in CS/Engg (any branch)with 2 yrs exp in IT. Competitive salary. F/T. Travel involved. Resume to HR, Smartsoft International, Inc., 3965 Johns Creek Court, Ste 500, Suwanee, GA 30024.

System Architect. Judge Technical Services has an internal opening for an IT professional with five years strong technical experience with MQ Series, Java, Unix, Middleware, EAI design, development and architecture. Must be willing to travel. Submit resume to G. Demos, 300 Conshohocken State Road, Ste. 300, Conshohocken, PA 19428-2949.

Software Engineers needed. Seeking candidates w/ BS or equiv and rel work exp. Part of rel work exp must include at least 3 yrs working w/ Oracle technologies, J2EE & XML. Duties include: installation, Design, Development, Testing, and Deployment of databases and software systems to using HP-UX, Oracle, J2EE/MS.NET to user specs. Mail resume & refs to: Ozburn-Hessey Logistics, 633 Thompson Lane, Nashville, TN 37204. EOE.

Techgene Solutions hes openings for Software Engineers or other IT staff. Candidates must have BS/MS with experience. Skills in Cobol, JCL, Oracle, SQL, VB, C/C++ are plus. Travel may be required for some positions. Competitive salary. Please epply et papujik@yahoo.com. No calls. EOE.

Paradigm Technologies is looking for program/system analysts, DBA, s/w engineers. Candidates must heve BS/MS with experience. Good skills in C/C++, Jave, Oracle, WebLogic, VB, HTML, ERP are plus. Travelling required for some jobs. Please apply at jobs@paradigmtek.com. EOE. No calls.

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Sr. Business Systems Analyst (Boston, MA) Manage business systems analyses, develop IT projects, and integrate systams. Min. req's: M.Sc. in Computer Science or a relatad fiald plus 2 yrs exp in job offered or 2 yrs exp in iT project development position gathering, analyzing and documenting technical requirements for software applications; designing and developing software solutions to integrate applications; and working throughout the software life cycle including analysis, design, development, system selection, implementation, testing, support, and evaluation. Exp must include: development of muiti-tiered web solutions using XML/XSL, SQL servers, Visual Basic, COM/DCOM, ASP and HTML to develop GUIs; management of a team of developers; development of applications for handheld devices; maintenance and integration of document and contact menagement systems; and management of day-to-day relations with vendors and contractors. 40 hrs/wk. Send resume to Ellen Looney, Human Resources Manager, Exchenge Place, Boston, MA 02109. EOE.

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The MathWorks, Inc. leads the market in developing and delivering high performance interactive software products such as MATLAB® to the engineering and scientific communities. We're increasing our lead by hiring the best people for every job in the organization. We have the following positions available at our offices in Natick, MA.

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Develop test suites & hands on testing using MATLAB for Identification, Controls & Estimation Team.

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Senior Quality Engineer
Develop test suites & hands on testing using MATLAB for Real-Time Workshop products.

Senior Release Engineer
Assist in build & test of code changes for Controls Design Automation products.

Systems Services Project Manager
Plan, design, implement, control & close IT infrastructure projects for multinational locations.

Senior Consultant [Engineer]
Assist customers & developers in MATLAB programming and model construction; provide training development & customer demonstrations.

Embedded DSP Software Engineer
Serve as Technical Development Lead for Simulink-based DSP code generation product.

Electronic Automation and Design Engineer
Create next generation EDA (Electronic Design Automation) tools for products that interface MATLAB and Simulink with HDL simulators.

Control Systems Product Marketing Specialist
Implement & project-manage strategic projects of Control Systems Technical Marketing Group. Project-manage internal & external projects for Industry Marketing & Control Systems groups.

Software Engineer - Desktop Deployment Products
Develop and support MATLAB compiler and associated builder products.

The aforementioned positions are available at all levels and require a minimum of a B.S. or M.S. in Computer Science, Engineering, Math or a related degree and 0-8 years of experience.

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- **Senior Guide Engineer**
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- **Distributed Computing Software Engineer**
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Infrastructure Analyst, Charlotte, NC - Review and analyze business requirements for complex voice applicetions and services; provide high level and detailed engineering designs, including latest voice and call delivery technologies (QSIG signaling, SS7 survivability) using PBX and CCS (Common Channel Signaling); collaborate with voice manufacturers and voice service providers to provide exact hardware and circuitry proposals, certifying functionality of designs, survivability and contingency of designs, and accuracy of pricing models; present engineering designs, proposals, and business cases to senior management to gain funding and support for project implementation; review voice system functional operability to insure that adequate capacity and services exist for all aspects of voice delivery in large, complex campus; provide analysis and recommendations for emerging technologies as applicable to campus voice systems. Requires a Bachelors degree in Electronic Engineering Technology or employer will accept Bachelors degree equivalent based on combination of education and/or experience as determined by a professional education/experience evaluation service. Also requires either 5 years experience in the job offered or 5 years experience in design and configuration of Nortel SL100 voice system using PBX and CCS applications and system software translation and routing applications. Salary $90,000/yr, 8 AM to 5 PM, Mon-Fri. Send resume to nearest Employment Security Office or submit resume to: Employment Security Commission, 500 West Trade Street, Charlotte, NC 28202; refer to job order #NC2652914 and DOT code 030.062-010. All resumes must include applicant's social security #.

Programmer/Systems Analyst, Mobile, AL. Provide tech. support for CRM processes. Admin. & dvlp. applics. to provide for efficient & effective business processes. Perform admin. duties for SalesLogix applic. Assist w/ training & support remote & ntwrk users on SalesLogix. Coordinate web design projects w/ 3rd party mktg. agency. Design, implement & support client-server web applics. Create user documentation to assist w/ bus. processes. Tune SAP syst. for effectiveness incld. user auth., background proc'g, instance meintenence, correction & transport sys. config., local & remote clt. copying & ITS srvr. monitoring. Resp. for co.'s "Do Not Call" db to meet FTC reqmts. REQ's: Bach.'s, or for. equiv., in CS/IS or Engr. Mail resume w/ ad (no calls) to Bryan Hack, KMPS, One Magnum Pass, Mobile, AL 36618.

Quality Assurance Specialist - write/exec detailed test plan/test cases from req'ment docs; analyze sys functionelity/test results working in UNIX env'ment, utilizing Oracle database/web servers/forms, and Java; design/develop scripts to ensure relieble/synchronized data distribution of 1000s of records; ensure test env'ment set-up; install appl code. Req BS or equiv in Engin/Comp Sci/or rel'd field, + 4 yrs exp working in UNIX env'ment, utilizing Orecle databese/web servers/forms, and Java. 40 hrs/wk, $71,622/yr. Must have proof of legal authority to work in the United States. Send your resume to the Cedar Rapids Workforce Development Center, 800 Seventh Street, SE, Cedar Rapids, Iowa 52406-0729. Please refer to Job Order IA1101941. Employer paid advertisement.

Programmer Analyst (Micro/Web) - Multiple Openings

Structured systems analysis, design, development, testing, quality assurance, implementation, integration, maintenance and support of integrated client-server based systems for business, financial, banking, manufacturing and other commercial business application systems in a multi-hardware/multi-software environment using centralized or distributed relational database management systems, 4GLs (Fourth Generation Languages) and other GUI (Graphical User Interface) front-end tools. Analysis, design and development of client-server applications using object-oriented methodology. Bachelor's Degree (or equivalent) in Computer Science-Math/Engineering/Science/Business-Commerce and 1 yr. experience in job offered or as Software Engineer/Systems Analyst are required. Must have appropriate combination of skills as follows: 1 of A and 2 of B; or 2 of A and 1 of B; or 3 of A. A includes Oracle, Sybase, Informix, SQL Server, Progress, Ingres, Access and Proxy Server; and B includes PowerBuilder, Visual Basic, MS-Windows, Visual C++, JAM, APT-SQL, SQL*-FORMS, ESQL/C, GUPTA SQL, Progress 4GL, Informix 4GL, Ingres 4GL, C, Java, Lotus Notes, HTML, CGI, IIS, ASP, Front Page, Perl and Java Development Kit (JDK); High mobility preferred. 40 hrs/week, 8 am - 5 pm. $66,533 - $78,000 per year. Qualified applicants should contact or send resume to: Fayette County CareerLink, ATTN: CareerLink Program Supervisor, 135 Waylan Smith Drive, Uniontown, PA 15401. Refer to Job Order # WEB 481245.

IT CAREER OPPORTUNITIES

GEORGIA - Technical Analyst/ Computer Systems Analyst

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Positions require e BS and/or relevant experience; a combination of experience and college-level education may be accepted. The flexibility to travel and be on call may be necessary. Proof of legal authorization to work in the U.S. is required. Please forward your resume to Computer Sciences Corp., Attn: J. Le, 2100 E. Grand Ave., Mail Code A209, El Segundo, CA 90245. Please indicate the specific occupation and location for which you are applying.

SolidWorks Corporation, a market leeder in software for mechenical design, analysis, and product data management is seeking a Senior Software Engineer at our Concord, Massachusetts headquarters: - Candidate will create end modify surface geometries of Computer Aided Design (CAD) software and maintain the quality of the software. Create and improve the quality of NURBS (NonUniform Rational B-spline) surfeces and resolve related issues. Enhance the Boolean operation of NURBS surfaces. Resolve problems reported by customers es well as find and fix erroneous code in the software. Position requires a Master's degree in Computer Science, Mechanical Engineering or closely related field of study plus two years of experience as Software Developer or Project Manager. This experience must include actual experience utilizing NURBS. Interested applicants should epply on-line only at: ssegeo@solidworks.com

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Programmer Analyst (IBM Mainframe) - Multiple Openings

Structured systems analysis, design, development, testing, quality assurance, implementation, integration, maintenance, support and conversion of large volume online transaction processing and batch application systems in a multi-hardware/ multi-software environment over centralized database systems using relational/hierarchical/network database management systems, Third Generation Languages (3GLs), Fourth Generation Languages (4GLs), CASE tools and Transaction Processing Software. Bachelor's Degree (or equivalent) in Computer Science-Math/Engineering/Science/Business-Commerce and 1 yr. experience in job offered or as Software Engineer/Systems Analyst are required. Must have appropriate combination of skills as follows: 1 of A and 1 of B and 1 of C; or 1 of A and 2 of B; or 1 of A and 2 of C. A includes DB2, IMS DB and IDMS DB; and B includes CICS, IMS DC, IDMS DC, ADS/O, QMF, VSAM and MF-Workbench; and C includes TELON, IEF, ADW, CSP and APS; High mobility preferred. 40 hrs/week, 8 am - 5 pm. $66,533 - $78,000 per year. Qualified applicants should contact or send resume to: Fayette County CareerLink, ATTN: CareerLink Program Supervisor, 135 Waylan Smith Drive, Uniontown, PA 15401. Refer to Job Order # WEB 480001.

SOFTWARE ENGINEER to design, develop and test complex software systems for various client/server, web-based and distributed computing environments using VitriaBusinessWare, Visual J++, MFC, Java, J2EE, Mercator, XML, SQL. PL/SQL, JDBC, DB2, Oracle and Rational Rose tools on UNIX, HP-UX, Solaris, Windows 95/98/NT/2000/XP and MS DOS platforms. Require: M.S. degree in Computer Science, or a closely related field with 1 yr of exp in the job offered or as a Systems Analyst; Experience gained before or after earning the degree will be accepted. Extensive travel on assignments to various client sites within the U.S. is required. Competitive salary offered. Apply by resume to: Rambabu Kumaraswamy, Newgen Technologies, Inc., 2980 EnnfieldLane, Duluth, GA 30096; Attn: Job KK.

Software Engineers

Cytech Resources, Inc., a professional IT consulting company, is seeking Software Engineers w/ MS/BS Computer Science, Engineering, Math or related &/or rel work exp. Part of rel work exp must include 1 year performing kernel debugging and working with real-time operating systems. Duties include: Design & develop device drivers, work w/ C/C++/C# and Assembly lang. Mail resume & refs to: Cytech Resources, Inc., 7628 Kimberly Ln, N, Maple Grove, MN 55311.

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A position is available for a Engagement Manager in Atlanta, Georgia with a technology solutions company. The Engagement Manager will be primarily responsible for managing multiple concurrent implementation projects and providing technical and management expertise. Candidates for this position require at least 3 years' experience in management in a technology environment, including 2 years' experience in project forecasting and budgeting; developing implementation methods and project scopes; negotiating contracts; and demonstrated knowledge of AS/400 or mainframe applications. Apply by mail to:
Craig Hardesty
Jacada Inc.
400 Perimeter Center Terrace
Suite 100
Atlanta, Georgia 30346

SOFTWARE ENGINEER - AllScripts Healthcare Solutions seeks qualified Software Engineers. Bachelors degree required with experience in analysis, design, development and coding using one or more of the following technologies: ASP-.Net, HTML, CSS, VBScript or ADO.Net. Reply by mail to 2401 Commerce Drive, Libertyville, IL 60048. Refer to ad code 342.

COMPUTER:
Stentor, Inc. currently has an opportunity in Brisbane, CA, for the following position: Project Director (Director of Partnerships & Alliances) -- Telecommuting ok. You may send a resume to Stentor, Inc attn: Megan McKinney at mmckinney@stentor.com. www.Stentor.com

Programmer Analyst (Unix Networking) - Multiple Openings

Install, customize and fine tune performance of the operating system on heterogeneous platforms. Achieve connectivity of workstations using networking technologies. Perform systems configuration management for both hardware and software. Provide user support and network troubleshooting services. Carry out performance tuning of application packages such as Relational Database Management Systems (RDBMS) under Unix operating system. Manage TCP/IP based services such as NFS, NIS, FTP, TELNET, etc. Perform network management using SNMP and related tools. Ensure fault tolerant printer services and back-up management procedures. Utilizing knowledge of installation of WAN connectivity with heterogeneous hardware platforms using routers and/or gateways over leased and dedicated circuits. Using knowledge of internals on operating systems for patching and coding device drivers and network programming using IP/IPX, TLI, Streams and SOCKETS. Bachelor's Degree (or equivalent) in Computer Science-Math/Engineering/Science/Business-Commerce and 1 yr. experience in job offered or as Software Engineer/Systems Analyst are required. Must have appropriate combination of skills as follows: 1 of A and 2 of B and 1 of D; or 1 of A and 2 of B and 2 of C; or 1 of A and 2 of C and 2 of D. A includes IBM AIX, HP-UX, Sun Solaris, DEC Open VMS/Ultrix, SCO Unix/ODT, USL Unix SVR4, UnixWare; B includes TCP/IP, IPX SPX, NFS, Bridges, Routers, Gateways, X.25, X.400, ISDN, ATM; C includes Perl, Korn Shell, C Shell, RPC, TLI, Streams, SOCKETS, API & toolkits, DDK, AWK, SED, LEX, YACC; and D includes Ethernet, Token Ring, FDDI; High mobility preferred. 40 hrs/week, 8 am - 5 pm. $66,533 - $78,000 per year. Qualified applicants should contact or send resume to: CareerLink Westmoreland, ATTN: CL Program Supervisor, 300 East Hillis Street, Youngwood, PA 15697-1808. Refer to Job Order # WEB 480106.

SENIOR PROGRAMMER/ANALYST to analyze, design, develop, test, maintain and implement Oracle applications, focusing on PO, AP, iProcurement, iExpenses, i-Supplier Portal, INV and GL modules, using Oracle, Forms/ Reports, OAF, Oracle Punchout & Workflow, SQL, PL/SQL, Java, JavaScript, XML, XCBL, XSLT, C, C++, Developer 2000, SQL*Plus, SQL*Loader, SQL-*Imports and SQL*Exports under UNIX, Windows NT, SUN Solaris and DOS operating systems. Require: B.S. degree in Computer Science, Business Administration, or a closely related field with two years of experience in the job offered or as a Software Engineer. Extensive travel on assignments to various client sites within the U.S.is required. Competitive salary offered. Apply by resume to: Srinivasa R. Manne, MethodexConsulting Services, Inc., 1517 W. Irving Blvd., Irving, TX75061; Attn: Job MS.

Calif based IT co has openings at its Torrance, CA and Chicago, IL ofcs and at unanticipated client sites across US for Pgrmr Analysts, Sftware Eng, Systems Analysts, Biz Dvlpmnt Consultants and Biz Analysts. Send resume with salary reqs to RJT Compuquest, 23430 Haw\thorne Blvd., #305, Torrance, CA90505, Attn: HR.

Analyst, Information Technology - Milwaukee, Wisconsin

Manages and administrates the version control environment, enterprise scheduling environment, configuration management and Enterprise System Management (ESM) environment. Performs application builds, change migration and coordination for key application development areas including Cognos, Broadvision and J2EE. Analyzes business-related issues to formulate and develop new or modified or open source solutions. Develops functional specifications, design specifications, test plans, security requirements, cost estimates, and resource requirements. Develops reporting tools underlying metrics supporting GOC (Global Operations Center) and ESM tool suites. Provides reports to business units and IT users for capacity planning, patch management and maintenance using Active Perl, UNIX scripts and DBI Modules. Improves the performance of all the scripts using computational complexity, syntax analysis and finite automata. Provides solutions; defines process and procedures for storage technologies, server monitoring technologies, scripting skills, and high availability architectures. Deploys Patrol Express to monitor processes and application on all Wintel, UNIX servers and mainframes. Integrates monitor services with call center and GOC. Provides guidance and administration support in implementing Configuration Management policies and procedures. Provides enhancements for Configuration Management Database in the accordance with Sarbanes Oxley and Information Technology Infrastructure Library Framework using Java Struts Framework, Java Server Pages and Oracle. Provides training to all business and IT users on Configuration Management database. Creates change management environments that define the appropriate source code practices and implement the controls needed to comply with Sarbanes Oxley and internal Information Technology controls. Manages version control software and perform associated administrative duties. Provides training on change management and version management procedures to application development staff. Required is a Bachelor of Science degree in Computer Science, Computing or Management Information Systems and one (1) year of experience as an IT Analyst, Developer, Operations Administrator or Systems Analyst. As part of the experience being required, the applicant must have had experience in the analysis, development, implementation, administration and documentation of enterprise systems software tools such as BMC Patrol Express, Tidal Scheduler, Application Expert Vantage Suite, and Merant's Version Manager; experience in creating and writing test plans for web applications and processes, Rational Rose, UML diagrams and case studies; experience with the following: Web servers (Tomcat, Apache HTTP Server), Java, Java beans, Java Applets, Java Scripts, Struts Framework, XML, Active Server Pages, Java Server Pages, Active State Perl and CGI , HTTP 1.1/1.0 protocols, network configuration, MS Access 2000, Oracle and MS SQL Server, Unix scripts, HTML/CSS, SQL, Windows 2000, Linux Red Hat 9.0. MS Office 2000, and MS Project 2000; and experience with Six Sigma quality tools to improve processes using Cause and Effect/ Fishbone, Pareto Analysis, Design of Experiment, Scatter diagrams, Failure Modes and Effects Analysis (FMEA), Statistical Process Control, Process Mapping and Flow Charting Must have proof of legal authority to work in the U.S. Qualified applicants please submit resume including job requisition #2711BR to M. Taft, P.O. Box 2086, Milwaukee, WI 53201-2086.

A position is available for a Software Engineer, Multi-media Transport in Atlanta, Georgia with a communications software platform developer. The Software Engineer, Multi-media Transport will be primarily responsible for creating advanced network protocols, including multimedia transport protocols (MMTP), that are jointly optimized with content processing tools to enable new broadband services, including next-generation cable networks. Candidates for this position should possess a Master's degree in Electrical Engineering, Computer Engineering, or Computer Science; and at least 2 years' experience as Transport Algorithm Engineer or in multimedia Research, including 2 years' experience in C/C++ programming, transport layer algorithms (including congestion control, reliability and buffer management), and multimedia transport protocols; and 1 year's experience in TCP/IP socket layer programming. Apply by mail to: William Hogan, EG Technology Inc., 250 14th Street, Suite 4007, Atlanta, Georgia 30318.

Ensoftek, Inc. seeks Systems Analysts based out of our Beaverton, OR loc. Analyze user requirements, analyze systems, design, develop, test, & document computer software & business applications/systems. Evaluate current system effectiveness & develop new systems. Use PeopleSoft World, PeopleSoft ERP 5, PeopleSoft ERP 8, SAP, ABAP, SAP Basis. Involves some travel. For Senior Systems Analyst must have Bachelors in Computer Science or related field + 2 yrs relevant exp. For Junior Systems Analysts must have at least Assoc. Deg in Comp. Sci. or related field + 1 yr relevant experience. Resume to Ensoftek, Inc. 7861 S.W. Cirrus Bldg. 24 Ste.AB, Beaverton, OR 97008.

Euro Solutions Group dba e:Solutions Group. seeks Systems Analyst in our Pittsburgh, PAloc. Assess bus. flows, analyze, set-up, maintain, & support Oracle HR & Payroll Apps. thru proj. life cycles. Apps. Admin., Production Support, Integration Test, Product Test & Dev. environs. Open TARS for Web Server & App. Obj. Lib.. User interaction to resolve tech problems & perf. slowdowns. Manage workflow processes; create scripts using APIs; create End User Layers & new reports for Discoverer4i. Expert in Oracle Self-service Human Resources 5, Payroll, OTA, CWB, iRecruitment Oracle App. Framework config.; AME; App. Obj. Lib.-Flexfields, Menus, Form Functions, Workflow, Oracle Fast Formula; Forms Developer 6i; Java, XML, Javascript dev.; Unix shell scripting; SQL & PL/SQL.Must have B.S. in Computer related field + 5 years relevant exp. Resume to Attn: JR Rivera, e:Solutions, 3960 Park Blvd, C San Diego, CA 92103

SolidWorks Corporation, a market leader in software for mechanical design, analysis, and product data management is seeking a Instructor/Course Developer at our Concord, Massachusetts headquarters: - Candidate will develop training and education materials for SolidWorks' CAD applications for use in pre-sales and post-sales environment. Develop instructor-led courseware, Internet-based training, and multi-media, CD-ROM based training. Deliver SolidWorks training courses to value-added resellers, solution partners, and employees. Position requires a Bachelor's degree in Computer Science, Engineering or closely related field of study plus 2 years experience in the position offered or 2 years as a CAD Engineer. Two additional years of experience as a CAD Engineer will substitute for B.S. degree. Must include experience developing CAD technical coursework and teaching mechanical CAD applications. Interested applicants should apply on-line only at: instcd@solidworks.com

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ABI RESEARCH 38
ACCENTURE LTD. 29, 36, 38
ACORN SYSTEMS INC 25
ADVANCED MICRO DEVICES INC. 8
AGRI BEEF CO 1
ALBERTSON'S INC. 6
ALLEGIS GROUP INC. 27
ALLOY VENTURES INC. 38
ALLSTATE INSURANCE CO. 27
AMERICA ONLINE INC. 12
AMERICAN OPTOMETRIC ASSOCIATION 8
AMR RESEARCH INC. 32, 45
ARC ADVISORY GROUP INC. 32, 33
ASCENTIAL SOFTWARE CORP 7
AT&T CORP 16
AT&T WIRELESS SERVICES INC. 7
ATB FINANCIAL 13
ATLANTIC RECORDS GROUP 29
ATTUNITY INC. 7
AXENT TECHNOLOGIES INC. 1
BARCLAYS PLC 14
BEA SYSTEMS INC. 1, 45
BEARINGPOINT INC. 32, 38
BELKIN CORP. 23
BERTELSMANN AG 12
BI RESEARCH 7
BLUETOOTH SIG INC. 23
BUSINESS OBJECTS SA 7
CELENT COMMUNICATIONS LLC 13
CHINA MOBILESOFT LTD. 48
CINGULAR WIRELESS LLC 7
CISCO SYSTEMS INC. 1, 9, 16
CITIBANK 13, 29
CLIENTSOFT INC. 12
COGNOS CORP. 7, 25
COMPOSITE SOFTWARE INC. 7
COMPUTER ASSOCIATES INTERNATIONAL INC. 6, 45
COMPUTER SCIENCES CORP. 12
CSC RESEARCH AND ADVISORY SERVICES 16
CUTTER CONSORTIUM 27
DAKOTA STATE UNIVERSITY 1
DC LOGISTICS SERVICES INC. 36
DELL INC. 23, 46
DON PEDRO COFFEE 17
DUPONT CO. 29
DURR INDUSTRIES INC. 1
EASTMAN KODAK CO 1
EDDCS INC. 6
ELECTRONIC DATA SYSTEMS CORP. 14
EMBARCADERO SYSTEMS CORP. 23
EMC CORP. 1, 13
ENTERPRISE STRATEGY GROUP INC. 6, 13
EPCGLOBAL INC. 6, 34
FARPOINT GROUP 7
FIFTH THIRD BANCORP 13
FISERV INC. 13
FORRESTER RESEARCH INC. 1, 27, 28
FRIEDMAN, BILLINGS, RAMSEY GROUP INC. 13
GARTNER INC. 1, 13, 23, 29, 34, 38
GECAD SOFTWARE SRL 6
GIANT COMPANY SOFTWARE INC 1, 6
GOFISH TECHNOLOGIES INC. 8
HAWAII HOMELOANS INC. 7
HENKEL CONSUMER ADHESIVES INC. 32
HEWLETT-PACKARD CO. 1, 8, 8, 13, 23
HILTON HOTELS CORP. 16
HITACHI DATA SYSTEMS CORP. 32
IBM 1, 7, 8, 13, 14, 16, 23, 29, 45, 46
IDC 6, 23, 31
IEEE 23
I-FLEX SOLUTIONS LTD. 13
INFORMIX CORP. 16
INSIGHT 64. 23
INTEL CORP. 6, 12, 16, 23
INTELLIFLEX CORP. 38
INVISTA 29
ITEMFIELD INC. 29
KALIDO LTD. 7
KEYMRO SAS. 14
LEGATO SOFTWARE. 13
LENOVO GROUP LTD. 46
LG ELECTRONICS INC. 8
LG ELECTRONICS U.S.A. INC. 8
LIQUIDXS.COM INC. 29
LOWE'S COMPANIES INC. 6
LUCENT TECHNOLOGIES INC. 29
M7 CORP. 8
MAZU NETWORKS INC. 8
MCAFEE INC. 6
META GROUP INC. 1
METAMATRIX INC. 7
METLIFE INC. 13
METLIFE INVESTORS GROUP INC. 13
MICROSOFT CORP. 1, 6, 8, 9, 12, 16, 17, 25, 36, 46
MOBILE COMPETENCY INC. 7
MOTOROLA INC. 7, 29
NASDAQ STOCK MARKET INC. 1
NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH 8
NCR CORP. 16
NEON SYSTEMS INC. 12
NETWORK INSTRUMENTS LLC 25
NEW YORK STOCK EXCHANGE INC. 1
NEXTEL COMMUNICATIONS INC. 7
NOVARTIS PHARMACEUTICALS CORP. 27
NSTAR 7
OATSYSTEMS INC. 34
OLD DOMINION UNIVERSITY 27
ORACLE CORP. 1, 16, 45, 46
OVUM LTD. 1, 14
OWENS CORNING 7
PACIFIC CYCLE INC. 36
PALMSOURCE INC. 46
PCI SPECIAL INTEREST GROUP. 23
PENSKE LOGISTICS LLC 7
PEOPLESOFT INC. 1, 16, 36, 45 46
PLATFORM LOGIC INC. 8
PPG INDUSTRIES INC. 29
PRIO CORP. 8
PROVIA SOFTWARE INC. 34
QUAKER CHEMICAL CORP. 1
QUEST INTERNATIONAL USERS GROUP 1
RADIANZ. 1
REMY CORP. 1
RFID SOLUTIONS LLC 32
RHODIA 14
RIPTECH INC. 1
ROSS STORES INC. 29
SAP AG 12, 14, 16, 45
SCHNEIDER ELECTRIC SA 14
SCHNITZER STEEL INDUSTRIES INC. 1
SEAGATE TECHNOLOGY LLC 16
SIEBEL SYSTEMS INC. 6
SOLOMON BROTHERS INC. 29
SPIRE SECURITY LLC 1
SPRINT CORP. 7
STRAND GENOMICS PVT. 14
SUN MICROSYSTEMS INC. 6, 34
SYBASE INC. 16
SYMANTEC CORP. 1, 8, 13
SYMBOL TECHNOLOGIES INC. 23
TEXAS INSTRUMENTS INC. 32
THE GILLETTE CO. 6, 31, 34
THE GOODYEAR TIRE & RUBBER CO 31
THE VERITAS CAPITAL FUND LP 12
THE YANKEE GROUP. 23
THOMSON. 14
TIME WARNER CABLE 6
TIME WARNER INC. 6, 12
TIVOLI SOFTWARE 1
TREND MICRO INC. 8
TRENSTAR INC. 32
TRUE DEMAND SOFTWARE 32
U.S. DEPARTMENT OF DEFENSE. 32, 38
U.S. DEPARTMENT OF JUSTICE 1
U.S. SECURITIES AND EXCHANGE COMMISSION. 12
UNITED PARCEL SERVICE INC. 23
VANASSE HANGEN BRUSTLIN INC. 9
VANGUARD CAR RENTAL USA INC. 6
VERITAS SOFTWARE CORP. 1, 8, 13
VERIZON COMMUNICATIONS INC. 7
VINTELA INC. 25
WAL-MART STORES INC. 1, 6, 31, 32, 34, 36, 38
WARNER MUSIC GROUP 29
WEBROOT SOFTWARE INC. 6
WELLS FARGO & CO. 7
WELLS FARGO SERVICES CO. 7
WIPRO LTD. 14
XEROX CORP. 14
YES BANK LTD. 14
YOUGOV LTD. 17

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www.ca.com
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Continued from page 1

Oracle

ducks in a row just to have to prepare for another conversion to a hybrid Oracle/PeopleSoft/J.D. Edwards product," Robinson said.

"Oracle has to win us over," agreed Andrew Albarelle, principal executive at Denver-based staffing company Remy Corp., which runs PeopleSoft's financial software. "I have not seen a clear message from them."

Albarelle said Remy had planned to license several additional application modules from PeopleSoft late this month. But now he will hold off and evaluate his company's options for maintaining its ERP system. He said he will consider building applications in-house as new functionality is needed and look at third-party maintenance providers.

Albarelle isn't the only user thinking that way. In a recent survey of 150 PeopleSoft users by Boston-based AMR Research Inc., 15% said they would immediately drop their software maintenance contracts with the vendor if it was bought by Oracle.

Burden of Proof

Other PeopleSoft users said they plan to treat Oracle like any other potential supplier.

"Like with any other vendor, if they want me to buy more or something new, they need to find a way to show me they care about my firm and are looking to help us succeed," said Bubba Tyler, CIO at Conshohocken, Pa.-based Quaker Chemical Corp., an EnterpriseOne shop. "They have to prove our ongoing relationship will lead to mutual value and not just their profits."

Some customers are more inclined to believe that Oracle will stick to its pledge to continue enhancing and supporting the acquired applications.

"I would have to say that at this point, Oracle is saying all the right things and making the type of commitments most customers, including me, would want," said Fred Pond, director of information services at Schnitzer Steel Industries Inc. in Portland, Ore., and president of the Quest International Users Group for J.D. Edwards customers.

Pond said he's open to working with Oracle but wants to see it deliver on upgrades that are in PeopleSoft's pipeline. He also wants bug fixes and regulatory updates on any currently supported version of EnterpriseOne.

Uncertainty Prevails

If nothing else, PeopleSoft's agreement to accept Oracle's offer lifts a cloud of uncertainty that had been hanging over users for months, Philip Carnelley, research director at London-based consultancy Ovum Ltd., said in a report. "At least now [PeopleSoft customers] will get some certainty, even if they don't like the outcome," he wrote.

But some users are resigned to finding a new application vendor in the long term.

"The chances are good we'll be someone else's customer in 10 to 12 years," said Casey McMullen, CIO at Agri Beef Co., a beef supplier in Boise, Idaho. "Oracle has a long row to hoe if they think they're going to woo me into doing business with them."

McMullen said he's no fan of Oracle, the company's products or its flamboyant CEO, Larry Ellison. He said he may stay a customer if Ellison departs and Oracle continues to develop PeopleSoft's products and ensures that they can run on multiple databases, such as SQL Server. **51518**

Stacy Cowley of the IDG News Service contributed to this report.

TIMELINE

Key Dates in Oracle/PeopleSoft Battle

2003

JUNE: PeopleSoft announces friendly purchase of J.D. Edwards; Oracle launches hostile $5.3 billion bid for PeopleSoft.

NOVEMBER: European Union launches investigation into merger and eventually approves it; PeopleSoft unveils plan for "poison pill" refunds to customers in case the merger succeeds.

2004

FEBRUARY: Oracle raises bid to $9.4 billion; U.S. Department of Justice sues to block merger.

JULY: PeopleSoft misses quarterly earnings projections, citing sales problems caused by Oracle's bid.

SEPTEMBER: Federal judge rejects the Justice Department's lawsuit.

OCTOBER: PeopleSoft fires CEO Craig Conway.

NOVEMBER: A majority of shareholders tender their stock to Oracle.

DECEMBER: PeopleSoft agrees to sell for $10.3 billion.

MORE ONLINE

Go to our Web site for full coverage of the Oracle/PeopleSoft deal:

QuickLink a3320
www.computerworld.com

Oracle Exec Outlines PeopleSoft Plan

Phillips promises rapid integration of companies, new releases of key apps

BY MARC L. SONGINI

PeopleSoft will be integrated into Oracle next month, right after the expected close of the $10.3 billion deal, according to Oracle Co-President Charles Phillips.

During a press conference last week, Phillips said the two companies are already working on the integration plans.

But Bill Swanton, an analyst at AMR Research Inc. in Boston, predicted that the integration will be easier said than done. "They will have to work very hard to succeed," Swanton said. "There are lots of places [where] they could run into trouble."

Product Plans

Without disclosing much in the way of details, Phillips said that Oracle will continue to enhance PeopleSoft's existing products and will develop new versions of both the flagship PeopleSoft Enterprise suite and the EnterpriseOne line of midmarket applications.

Phillips also said Oracle will continue to maintain the World green-screen applications that PeopleSoft gained along with EnterpriseOne through its mid-2003 acquisition of J.D. Edwards & Co.

Over time, Phillips said, Oracle plans to merge the functions of the PeopleSoft and Oracle product lines so they "look more alike" and to make it easier for users to migrate from PeopleSoft to Oracle.

Oracle said its E-Business Suite software will eventually become the more advanced set of applications. The company wouldn't say whether the merged products would support databases from vendors other than Oracle.

"With the database, it's hard to say," Phillips said. "I would surmise that at some point there would be customers who perhaps are using PeopleSoft on DB2, and they'll end up with the Oracle product and database as well."

Swanton said Oracle must quickly convince users that they won't be forced to give up their PeopleSoft applications overnight. "No one is going to pay full maintenance just to be ported to the E-Business Suite," he said.

"We have to give good service and give [PeopleSoft users] a reason not to look elsewhere."

CHARLES PHILLIPS, co-president, Oracle

Phillips acknowledged that Oracle has to keep its new customers happy to hold on to maintenance revenue. "We have to give good service and give them a reason not to look elsewhere," he said.

Oracle does plan to do some rationalization of the technology — which most likely means paring down PeopleSoft's reliance on BEA Systems Inc.'s and IBM's middleware stacks in favor of its own products, Phillips said.

In an e-mail, Phillips acknowledged that many mergers in the IT industry have failed, but he pointed out that "a few deals have worked." He cited SAP AG's acquisition of TopTier Software Inc. for its portal technology and many of the deals made by Computer Associates International Inc. as examples.

"[The buyout] wasn't easy, but this a good thing for the industry," he said. **51514**

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FRANK HAYES ■ FRANKLY SPEAKING

Where to Start

READY FOR 2005? It's shaping up as a year for innovation — and uncomfortable decisions. Things are changing. IBM is dropping out of the PC business. Oracle is swallowing PeopleSoft. Outsourcing, offshore and otherwise, looms large as an option — or maybe a requirement. Sarbanes-Oxley and HIPAA, grids and Linux, wireless and RFID all require corporate IT to bite the bullet, make choices and then move forward to do new things.

We've put these decisions off for years. We can't any longer. But how to make those choices? Start with the filter IBM used in deciding to sell its PC line: innovations vs. commodities.

PCs are commodities. That means it's hard to differentiate products, so competition is fierce and return on investment is low. True, IBM ThinkPad laptops have a reputation for innovation in design. But IBM decided that innovation couldn't add enough to a ThinkPad's price to make the business worth keeping.

So how does an IBM competitor like Dell stay afloat? By pouring the innovation into its manufacturing and marketing processes, not just into its products. That's why Dell will still be in the PC business in 2005 and IBM won't.

The day after IBM said it will sell its PC business to Chinese vendor Lenovo, PalmSource — which makes the operating system for Palm handhelds — announced it's buying China MobileSoft, which makes a version of Linux for cell phones. PalmSource also said it will turn Palm OS into a layer on top of Linux. That makes sense. Operating systems are now commodities. PalmSource doesn't want to invest in a low-return commodity business.

But PalmSource *does* want to keep control of that high-value Palm OS layer. That's where the innovation is. And innovation is where the money is in 2005.

The fact that operating systems are commodities also explains why Microsoft keeps trying to climb up to innovation-oriented layers like business intelligence and Internet search. Monopoly Microsoft may thumb its nose at antitrust regulators, but it can't finesse the relentless pressure of commoditization.

Why has Oracle gone after PeopleSoft? Because relational databases — still Oracle's core business — are commodities too. Sure, there's some innovation, but mostly a database is a database. Lots of PeopleSoft customers use databases from IBM, Microsoft and other vendors. Oracle wants those customers. And buying the enterprise application out from under those customers looks to Oracle like a good way to capture them.

Oracle may also genuinely want to leverage the innovation that's in PeopleSoft's applications. Only time will tell whether that's true.

What do we learn from all this? The same things that drive these vendors will drive our decisions in 2005.

What should we outsource? The low-return commodity work, obviously. Unless, like Dell, we can find innovative ways to do that work to create a competitive advantage. If we get a higher return from doing it in-house, then we should keep it in-house.

How do we handle regulatory requirements like Sarbanes-Oxley and HIPAA? The first step is meeting the deadlines. But after that, what? If cranking out that data is a commodity process, we should find the cheapest way to deal with it. But if we can provide insight to business-siders for boosting the top or bottom lines, we should invest more in that kind of data collection.

On-demand IT provisioning makes sense if computing and storage are commodities to us — but not if we can find innovative ways to leverage those elements for business advantage. Going with Linux might make sense, but not if there are special, innovative ways that we're using Windows or Unix. Wireless and RFID may be commodities or innovation points, depending on what we need and how we use them.

Yes, 2005 will be a year for innovation. But deciding what's ripe for innovation and what's a commodity — that's the decision we'll have to tackle first. **51484**

FRANK HAYES, *Computerworld*'s senior news columnist, has covered IT for more than 20 years. Contact him at **frank_hayes@computerworld.com**.

Conflict Management

"Process control and IT do not always get along," says a process-control pilot fish at a highly automated chemical plant. "If the computer goes down, the factory may or may not have an operator in control." So fish is stunned when he walks into the control room to find a tech from IT upgrading the main computer. "No one in the entire plant knew he was coming," fish fumes. "We were lucky only one pump was running." Next day, plant personnel get a new directive: "If any IT people come in without checking in at the plant manager's office, they are to be rendered unconscious and removed from the control room."

SHARK TANK

What For?

At this data center in the late 1970s, it's the third-shift operator's job to back up the master files every night. So when there's a midday hardware failure and the day operators can't find last night's backup tapes, they go looking for last night's operator. "When called at home, he explained that he had checked the tape-use logs and found that no one had used the backup tapes in over a year," reports a pilot fish on the scene. "So he thought the job was a waste of his time – and he had not run the backup jobs for several months."

Security

This defense agency wants to issue laptops to users so they can dial in for orders via e-mail. And the security group is worried about using unsecured phone lines. So when users get the laptops, it takes four separate passwords to log on – and the messages can't be printed out. "Users add their own level of security – they don't switch the laptops on," says a pilot fish in the know. "Orders are now sent by a means acceptable to the security section: by fax or voice over the very same 'insecure' phone lines."

Um . . . Right

Pilot fish has to OK system changes with the help desk – which doesn't always get it. So when fish asks for triggers on the database tables to be changed, confirmation comes back: "User states that critters on three tables need to be modified."

Square One

User tells support pilot fish she needs a CD. A blank CD or a prerecorded one for testing? fish asks. Blank, user says. CD-R or CD-RW? asks fish, who then has to explain the difference. "After she decided she needed a CD-R, I got one out of the supply cabinet for her," fish says. "She stopped me and said, 'That's not the kind of CD I need. I need a square CD.' I handed her a diskette, and she went away happy."

SHARKY'S GOING AWAY, TOO – but just for the holidays. Meanwhile, send me your true tale of IT life at **sharky@computerworld.com**, and you'll get a sharp Shark shirt if I use it when I get back. And you can still check out the daily feed, browse the Sharkives and sign up for Shark Tank home delivery at **computerworld.com/sharky**.

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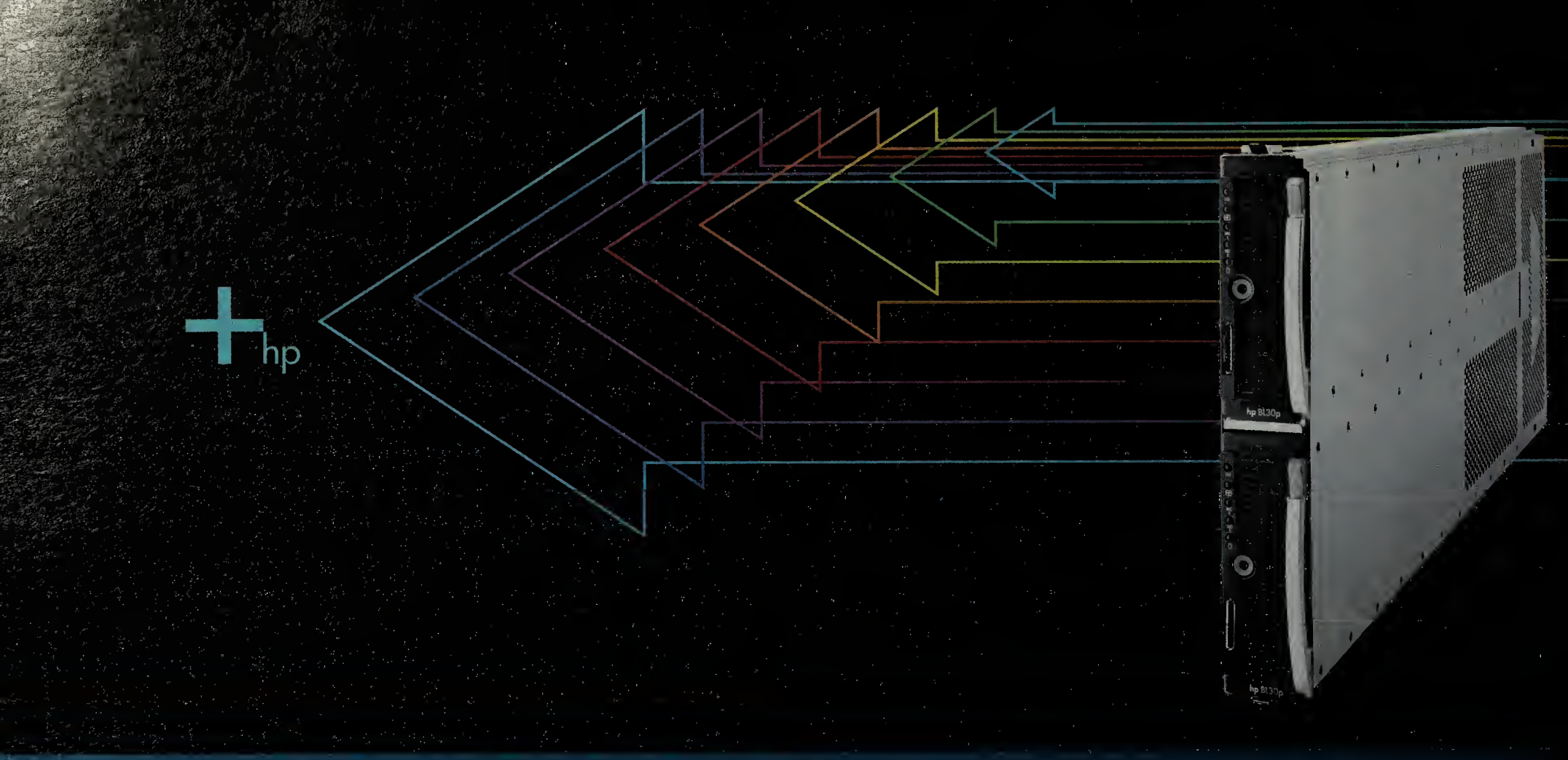

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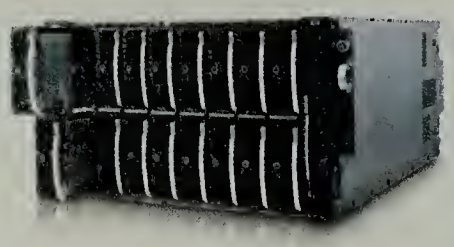

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